

What is the economic contribution of Surf Life Saving in Australia

2011

Australian
for life.



Surf Life Saving (SLS) is Australia's major water safety and rescue authority and is one of the largest groups of volunteer organisations in the country.

*Over **28%** of members, or more than **43,000** people are active patrolling surf lifesavers.*

*The total estimated economic value of Surf Life Saving's coastal drowning and injury prevention efforts to Australia is **\$3.6 billion.***

Preface

Surf Life Saving is iconic and fundamental to Australian culture and outdoor lifestyle. Every year, thousands of volunteer surf lifesavers patrol Australian beaches, guiding the public to swim ‘between the red and yellow flags’.

Volunteers also help individuals in need, including offering a helping hand in the water or by simply dressing a minor injury.

PwC has been commissioned by Surf Life Saving Australia (SLSA) to estimate the economic value of Surf Life Saving to the Australian community.

SLSA is Australia’s major water safety, drowning prevention and rescue authority, and is the largest volunteer organisation of this kind in the country, with core activities including:

- Coastal safety and lifesaving
- Education and training
- Member and organisational development
- Fitness and sport

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1. Executive summary

Surf Life Saving Australia

With a long history and tradition, the surf lifesaver has a unique role in Australia's culture: to save lives and prevent injuries for people who visit our beaches.

Many Australians choose to be part of this culture and so Surf Life Saving (SLS) is one of the largest volunteer organisations in the country. More than 153,000 members spread across over 300 clubs make SLS Australia's major water safety and rescue authority.

Between 2002/03 and 2009/10 the growth in membership outstripped the increase in patrolling members, with membership growing at approximately 6% per annum from 106,000 to over 153,000 (Figure 1). During the same period, patrolling members increased by 5% per annum.

Figure 1: Growth in membership and volunteers from 2002/03 to 2009/10



Source: SLS Annual Reports, Note that from 2005-06, the under 7 'Nipper' age group was included in total membership calculations.

These surf lifesavers (and SLS's lifeguards) completed almost 12,000 rescues in 2009/10 (Table 1), and through preventative actions avoided a further 6,000 rescues across Australia.

Further, volunteer surf lifesavers contribute on a personal level, through volunteer hours to ensure that the extent of these rescues can be completed:

- Members aged 16-49 contribute comparably more volunteer hours per individual than those aged 50 and above
- During the season, over 70% of members volunteer more than 3 hours per week, with almost a quarter of members donating in excess of ten hours per week
- Half of volunteers patrol between 3 and 10 hours per week during the season

Table 1: Total number of rescues by surf lifesavers and SLS lifeguards in Australia, 2009/10

Jurisdiction	Number of rescues
NSW	5,697
NT	300
QLD	3,736
SA	272
TAS	99
VIC	758
WA	1,050
TOTAL RESCUES	11,912

Valuing volunteer surf lifesavers in Australia

Volunteering delivers a number of benefits for individuals including personal satisfaction, helping others and the feeling of fulfilment from doing something worthwhile for the community.

In addition to these personal benefits, volunteering provides positive aspects to society and the local community. Specifically relating to Surf Life Saving, there are non-quantifiable benefits from creating a more cohesive community to quantifiable economic benefits including improving beach safety, awareness and the prevention of drowning.

Given the obvious contribution of members and the services volunteer surf lifesavers provide to the public, it is necessary to quantify the economic benefit of Surf Life Saving in Australia.

There are two methods to measuring the activities of SLSA surf lifesavers and lifeguards:

- Input approach – focuses on the time that surf lifesavers provide as volunteers and the resources used by surf lifesavers and their clubs
- Output approach – this approach focuses on the benefits of the Surf Life Saving services as measured by the likely cost to the public if the service was no longer provided

The flow-on economic impacts to the wider Australian community are measured separately using a Computable General Equilibrium (CGE) model (Section 3.4).

Input approach

The sum of the value of patrol hours, personal expenses incurred as a result of volunteer activities and the expenditure of Surf Life Saving bodies determine the total value using the input approach. In total, the estimated input value of Surf Life Saving is equal to \$163.6 million in 2009/10.

Table 2: Total input approach value (\$million)

Jurisdiction	Total input value 2010
NSW	60.1
NT	1.1
QLD	44.5
SA	6.3
TAS	2.1
VIC	18.9
WA	11.4
SLSA	19.2
Total	163.6

However, the input approach only captures a small aspect of the economic effects and, by focusing on costs, understates the true value of Surf Life Saving's services.

Output approach

Volunteer surf lifesaving services in Australia provide the greatest value in avoiding costs associated with drowning deaths, and overall the total value of lives saved and assisted, using the output method, was more than \$3.4 billion in 2009/10. The estimated value of Surf Life Saving in preventing:

- drowning deaths is \$2.2 billion
- permanent incapacitations is \$1.2 billion, and
- minor injuries and first aid treatments is \$90,000

In addition, the flow-on effects from avoided loss of productivity due to Surf Life Saving services on other sectors of the economy need to be considered in order to understand the full value of Surf Life Saving in Australia. Using a CGE model, the flow-on impacts are in the order of \$154 million per year to the Australian economy.

Estimated value of Surf Life Saving in Australia

The output approach is the preferred method of capturing the full range of impacts from Surf Life Saving as it accounts for individual benefits and cost savings. When combined with the economic flow-on effects, the total value of Surf Life Saving to Australia is \$3.6 billion per year.

Table 3: Total value of Surf Life Saving (\$million)

Jurisdiction	Total value 2010
ACT	4
NSW	1,694
NT	90
QLD	1,146
SA	86
TAS	29
VIC	235
WA	282
Total	3,566

Comparing the output value with the input value provides a cost-benefit ratio (for every dollar spent on Surf Life Saving, what is the value of the lives saved and the injuries avoided):

- Assuming that volunteer surf lifesavers are paid a salary (and included as a cost), the cost-benefit ratio is 21.7 to 1
- Assuming salaries are not paid, the cost-benefit ratio is 29.3 to 1

Under either scenario, the benefits of Surf Life Saving far outweigh the costs, further demonstrating SLSA's unique and significant value to the Australian community and economy.

Background

We worked with Surf Life Saving Australia (SLSA) and its state and territory SLS bodies to estimate the input, output and indirect economic contributions of surf lifesaving to Australia.

In order to accurately value surf lifesaving in the community, we have utilised published SLS statistics and also gathered information directly from surf life saving club members.

Methodology

This evaluation was undertaken in four steps as agreed in June 2010:

1. collect relevant data from SLSA and its state and territory Surf Life Saving organisations
2. undertake a survey of surf lifesavers. Results of the comprehensive survey of Surf Life Saving members have been used as part of the output approach including the number of volunteer hours of individuals and the personal expenses accrued as a result of volunteering
3. undertake economic analysis, using input and output based approaches, as well as considering the wider flow-on economic impacts
4. provide SLSA with a report and state-based fact sheets that contain key findings of our evaluation

In the first phase of the evaluation, data was collected to use as a foundation for our assessment:

- surf lifesaver and lifeguard activities, including the number of rescues, first aid treatments and preventative actions
- number of volunteers and patrol hours
- total expenditure of surf life saving clubs, and
- number of drowning deaths, permanent incapacitations, and preventative actions

For the purposes of understanding the involvement of volunteers, a survey of Surf Life Saving members was conducted in conjunction with this project and provided additional information on:

- actual hours volunteered
- hours that volunteers would like to volunteer (to assess whether volunteers would prefer more or less volunteering commitments)
- any other employment commitments that may be affected by volunteering
- the cost of volunteering, and
- the hours of physical activity undertaken as a result of surf lifesaving

Results from this survey are used to complement published data by surf life saving entities. Data may be representative of survey respondents and of that provided by SLSA.

Analysis

The data collected from both SLS and volunteer surf lifesavers was used to estimate the economic value of SLS using input and output approaches, each of which is discussed in detail in this report.

The comprehensive survey of Surf Life Saving members attracted almost 5,000 responses, enough to calculate statistically significant results.

The flow-on impacts of SLS to the wider Australian economy were also estimated. These wider impacts are additional to the input and output evaluations mentioned above.

Reporting

Our findings have been presented to SLSA in the following report and state and territory summary factsheets. The Australia-wide report presents the results on a national level while the summaries highlight the importance of SLS services to each jurisdiction.

This 2011 report differs from previous reports in that it focuses on the economic impacts of SLS activities. Additional research on the social value of SLS is being conducted separately.

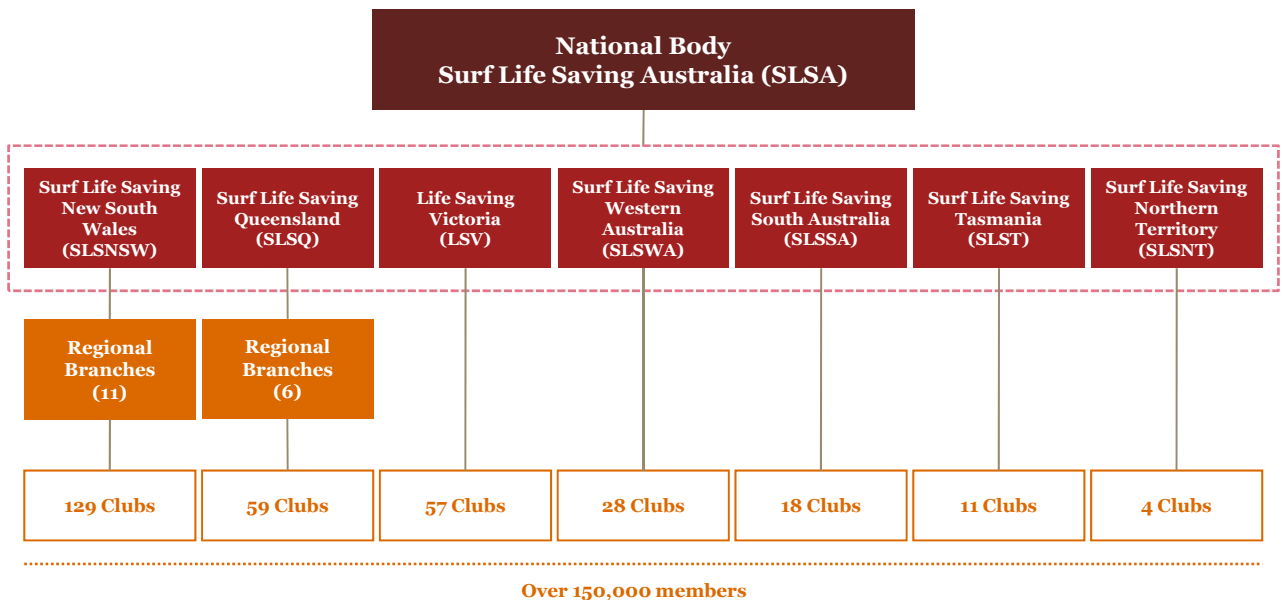
2. Characteristics of Surf Life Saving in Australia

Surf Life Saving Australia (SLSA) is Australia’s major water safety and rescue authority and is one of the largest volunteer organisations in the country, with over 150,000 members. Surf Life Saving exists to save lives, develop practices in education, prevention and rescue, and ultimately to meet the target of ‘zero preventable deaths and injuries on Australia’s beaches’ as the benchmark for drowning prevention and aquatic rescue both in Australia and around the world.¹

Surf Life Saving is a federated and geographically dispersed body with several organisational layers. It incorporates 306 local surf life saving clubs, seven state and territory centres and 17 regional branches in NSW and Queensland (Figure 2).

Across Australia, the greatest number of Surf Life Saving clubs are based in NSW, Queensland and Victoria, reflecting the large number of beaches and relative proximity of a high proportion of the population to the coast.

Figure 2: Organisational structure of SLS in Australia



SLS endeavours to provide a safe beach and aquatic environment throughout Australia, while encouraging the development of personal and leadership skills of its members. As an indication of SLS’s commitment to ensure the safety of Australians and international tourists, they recently announced an initiative to feature beach safety videos on flights arriving in Australia. This serves as a mechanism to improve the water safety awareness of international tourists².

Aspects fundamental to the organisation’s activities include:

- lifesaving and improving community water safety
- coordinating surf club operations, competitions and events
- education and training of members and the general public about aspects including water safety knowledge, survival skills, first aid and personal safety (e.g. sun safety), and
- organisational development, including leadership and personal development through encouraging volunteers³

Individuals of all ages can become members, and are encouraged to undertake training in aquatic rescue, first aid and other related skill sets.

2.1 Members of the Surf Life Saving community

SLS draws individuals from all demographics and age groups. Members range in age from five to over 80 years. In 2009-10 there were over 153,000 members, including junior members (Nippers).⁴

Excluding junior members, of which there are almost 50,000 in Australia, those aged 40-49 years comprise the largest member group, with people 30 years and older representing more than 80% of all members (Figure 3). This profile is reflected in all individual state membership characteristics. Male members comprise 57% of all members or 85,000 members overall.⁵

SLS offers several membership types, ranging from 'Nippers' to 'Active', which encompass all age groups. Table 4 describes general membership types.

Figure 3: Percentage membership by age (not including those under 15 years)

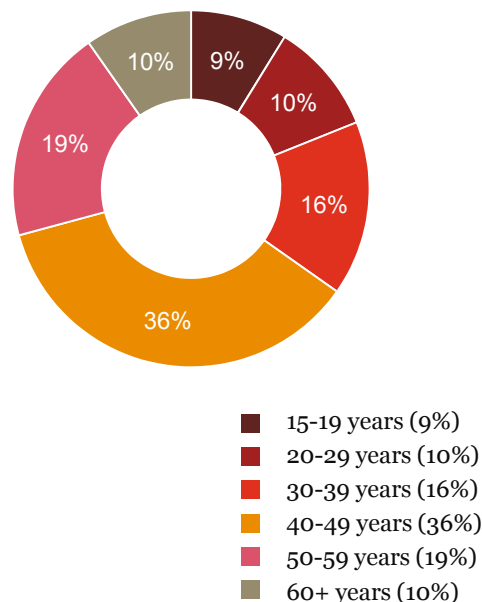


Table 4: General membership descriptions⁶

Membership type	Age requirements	Aim / Description
Junior (Nippers)	5 to 13 years	Educate young children about surf safety and awareness
Cadets	13 to 15 years	Encourage members to gain Surf Rescue Certificate (SRC)
Active	15 + years	Opportunity to gain qualifications and skills including the Bronze Medallion, Advanced Resuscitation and other specialist qualifications. Those aged over 18 are classified as 'Senior Active'
Award	No requirement	Members with a SLSA qualification
Associate	15 + years	Members with no patrol or qualification requirements
Long service	No requirement	Long Service Membership may be granted to members who have completed 10 years active service or to members who have completed 8 years active service plus 4 years of reserve active service.
Life Member	No requirement	Life membership may be granted by a club, branch, states and SLSA to members who have rendered distinguished, or special service
General	No requirement	General membership may be granted to persons who may or may not hold an SLSA award

4. Annual Report 2009-10, SLS

5. Annual Report 2009-10, SLS

6. The Regulations, Surf Life Saving Australia

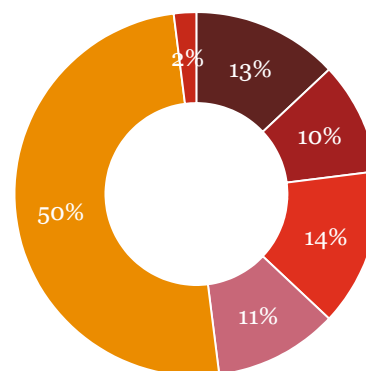
A large number (50%) of survey respondents nominated that they are classified as 'Active', thereby having the opportunity to hold a Bronze Medallion, fulfil patrol and club obligations and qualify in an annual proficiency test (Figure 4).⁷

Although exact age requirements vary between training programs, members can build their skills in surf rescue and first aid from age 13.⁸ Of mature members, 43,000 participate in patrolling activities on Australian beaches. Those members interested in becoming surf lifesavers can undertake the Bronze Medallion, which comprises specific elements to ensure individuals are capable of undertaking aquatic rescue.⁹ The Bronze medallion is the minimum requirement for an active surf lifesaver. To obtain this award a person must be over the age of 15 and demonstrate proficiency in surf awareness, survival, patrol and rescue procedures, emergency care plus knowledge of anatomy and physiology.¹⁰

There are patrolling positions available for men and women who would like to be involved in the Surf Life Saving community.¹¹ The growing popularity and awareness of safety in the surf is highlighted by the growing number of new Bronze Medallions issued in 2009/10 – over 8,800 were awarded in Australia, an increase of 16% on the previous year.

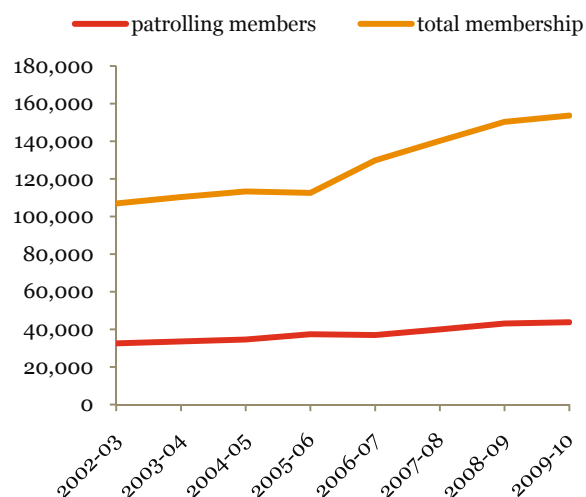
Membership has increased across all categories and reflects the Australian beach culture and high proportion of the population that reside in coastal areas. Between 2002-03 and 2009-10, the growth in membership has increased more than the growth in patrolling members, with membership growing at approximately 6% per annum from 106,000 to over 153,000. During the same period, patrolling members have increased by 5% per annum (Figure 5).

Figure 4: Total membership by membership level of survey respondents



- Associate (13%)
- General (10%)
- Life Member (14%)
- Long Service (11%)
- Active (50%)
- Junior/Nipper (2%)

Figure 5: Growth in membership and volunteers from 2002/03 to 2009/10



Source: SLS Annual Reports, Note that from 2005-06, the under 7 Nipper age group was included in total membership calculations.

7. SLS Awards Structure, Surf Life Saving
 8. Administration and resources, Surf Life Saving Australia
 9. Can Do Report, Surf Life Saving
 10. Annual Report 2009-10, Surf Life Saving Australia
 11. Become a surf lifesaver, Surf Life Saving Australia

2.2 Volunteer surf lifesavers

Surf lifesavers are men and women who volunteer their time to provide aquatic supervision at the most accessible of Australia's coastal environment. Known throughout the world they are easily recognised by the famous red and yellow cap, and their bright red and yellow uniforms.

The beach patrol is a team of volunteer members rostered onto duty through affiliated community based volunteer Surf Life Saving clubs. The patrol team is coordinated by the Patrol Captain who is responsible for the coordination of actions in monitoring the beach and in times of rescue and emergency care. They focus on four important aspects that can result in drowning deaths, commonly known as the 'Drowning Chain':¹²

- lack of knowledge, disregard for or misunderstanding of the hazard
- uninformed or unrestricted access to the hazard
- inability to cope once in difficulty, and
- lack of supervision or surveillance

This understanding of why people drown has helped to develop strategies used by SLS to prevent drowning deaths, including providing enhanced supervision, education and information, denial of access, improving infrastructure, provision of warnings, as well as facilitating the acquisition of survival skills.

Surf Life Saving is Australia's major water safety and rescue authority. Its core activities include:¹³

- **Community safety** — performing an average of around 12,000 rescues each year
- **Health and fitness** — providing a range of surf sports opportunities, from local to international, for members, as well as a range of community sporting events
- **Education and training** — providing leadership and personal development for all members as well as community education and training
- **Australian Coastsafe Services** — providing risk management services to local government and other organisations

SLS also actively collaborates with other entities to address water safety issues. A partnership with Tourism Australia, industry partners and multi-cultural marketing experts is helping to prevent tourist and migrant drowning deaths in Australia. With funding support from the Australian Government, SLS is reducing the incidence of drowning in Australia through targeting high-incident locations called 'Blackspots'. SLS is also a key stakeholder in the Australian Water Safety Council.

12. Preventing Coastal Drowning Deaths in Australia, Surf Life Saving Australia

13. Whatever it takes, Surf Life Saving Australia

2.3 Surf Life Saving rescues and preventative actions

Surf lifesavers and SLS's lifeguards in Australia completed 12,000 rescues in 2009/10 (Table 5).

Table 5: Total number of rescues by surf lifesavers and SLS lifeguards in Australia, 2009/10

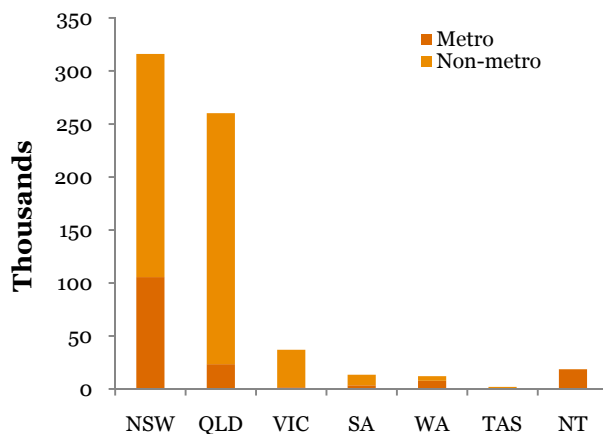
Jurisdiction	Number of rescues
NSW	5,697
NT	300
QLD	3,736
SA	272
TAS	99
VIC	758
WA	1,050

TOTAL RESCUES **11,912**

Note that the number of rescues in the NT has increased since 2005 due to the inclusion of SLS lifeguard patrols at the Darwin Wave Lagoon.

The number of preventative actions undertaken by surf lifesavers is variable and can change with each surf season. Typically, as rescues decrease in any year, the number of preventative actions increase. In 2009/10 656,000 preventative actions were undertaken by volunteer surf lifesavers and SLS lifeguards (Figure 6).

Figure 6: Total number of preventative actions by surf lifesavers and SLS lifeguards in Australia, 2009/10¹



Note that the number of preventable actions in the NT has increased since 2005 due to the inclusion of SLS lifeguard patrols. At the Darwin Wave Lagoon

2.4 Profile of a typical volunteer

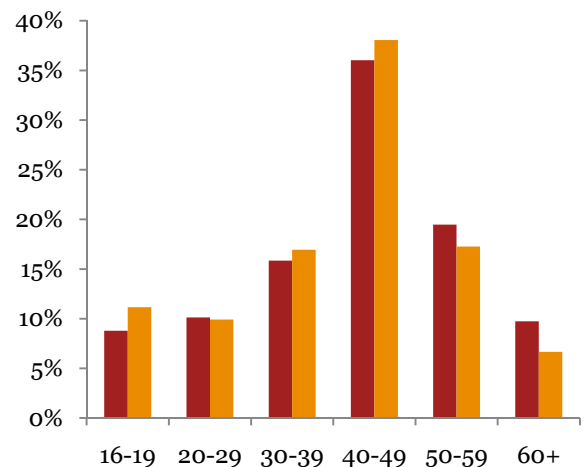
Active surf lifesavers are rostered by their surf club to volunteer their time to patrol beaches.

According to a survey of members, those members aged 40-49 years volunteer the largest amount of time to volunteering services, contributing 38% of total monthly volunteering hours, while making up 36% of total membership (Figure 7).

Similarly, those aged from 16 to 49 contribute more to total volunteering hours than the percentage of that group in total membership; individuals in these groups tend to volunteer more hours per person. Conversely, those members of 50 years of age and older volunteer fewer volunteer hours per individual.

Given the obvious contribution of members and the services volunteer patrollers provide to the public, it is necessary to quantify the benefit of Surf Life Saving in Australia.

Figure 7: Comparison of total membership to weekly volunteer hours (%)

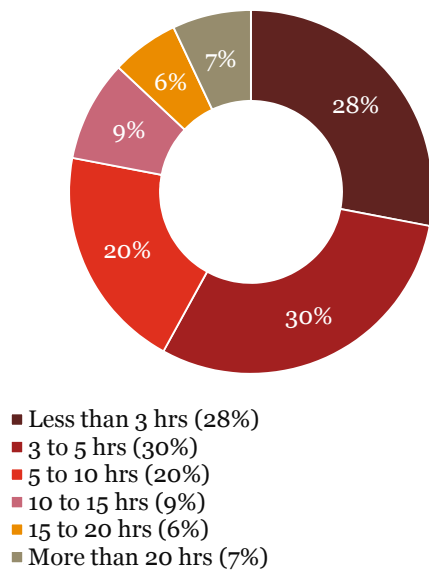


During 2009/2010 surf lifesavers and lifeguards undertook around **12,000** rescues in Australia.

The majority of volunteer hours were contributed by those **aged 40-49**.

Further, up to 50% of members typically volunteer up to 3 to 10 hours per week during the season, with a relatively small number (7%) volunteering more than 20 hours a week (Figure 8).

Figure 8: Percentage of members who volunteer per week, by hours during the season¹⁴

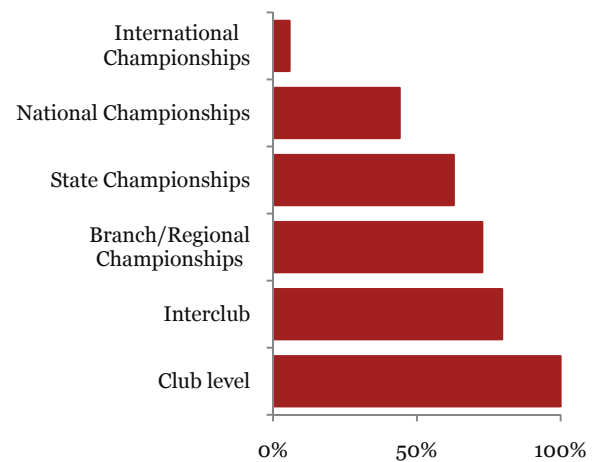


2.5 Participation in surf sports competitions

Many surf lifesavers engage in regular competition to maintain their skills and fitness. These competitions, or surf carnivals, are held at club, regional, state, national and international levels. Competitors, as young as five years old through to masters (veterans) competitors can take part, with all competition events developed from core life saving skills and techniques.

According to survey results, approximately 82% of all members aged over 16 years actively compete in surf club events around Australia. Over 60% of those individuals participate at the state level with about 5% participating in international competitive level (Figure 9). This includes Ironman and Ironwomen competitions; Australia boasts the title of current World Champions and Adelaide will host the World Life Saving Championships in 2012.

Figure 9: Competition level achieved by members actively competing in Surf Life Saving within Australia



Over **70%** of members volunteer more than 3 hours per week during the summer, with almost a quarter of members donating in excess of ten hours.

Half of volunteers patrol between **3 and 10 hours** per week during the summer season.

14. Data supplied by SLS member survey

3. Value of Surf Life Saving

Volunteering delivers a number of benefits for individuals, including personal satisfaction, helping others and the feeling of fulfilment from doing something worthwhile for the community. There are significant benefits for young people volunteering, as there are opportunities for self development alongside valuable perceptions of community citizenship.¹⁵

In addition to these personal benefits, volunteering provides positive aspects to society and the local community. Specifically relating to Surf Life Saving, there are non-quantifiable benefits from creating a more cohesive community to quantifiable economic benefits from improving beach safety, awareness and the prevention of drowning deaths.

The value of Surf Life Saving services arises not only in the benefits to individuals, but also wider economic benefits for all Australians.

3.1 Methodology to value surf lifesaver volunteering

There are two methods to measuring the unpaid, or voluntary work of surf lifesavers:

- Input approach – focuses on the time that surf lifesavers provide as volunteers and the resources used by surf lifesavers and their clubs. The wage forgone by undertaking volunteering activities, can be used to place a value on surf lifesaving volunteering activity¹⁶
- Output approach – this approach focuses on the benefits of the Surf Life Saving services as measured by the likely cost to the public if the service was no longer provided

The flow on economic impacts to the wider Australian community are measured separately using a Computable General Equilibrium (CGE) model, which accounts for the increase in Gross Domestic Product (GDP), employment and other economy wide variables as a result Surf Life Saving activities.

Results of the comprehensive survey of Surf Life Saving members have been used as part of the output approach including the number of volunteer hours of individuals and the personal expenses accrued as a result of volunteering. Furthermore, expenditure by local clubs and state jurisdiction Surf Life Saving entities was provided in order to quantify the expenditure of physical capital.

15. Preliminary Research Finding: Volunteers in Queensland State Government, Conroy, D

16. Giving Time – The economic value of volunteering in Victoria, Soupormas, F and Ironmonger, D

3.2 Input-based approach

The value of Surf Life Saving activities in Australia under the input approach is calculated as the sum of:

- the value of volunteering time
- the amount spent by volunteers on personal expenses relating to surf life saving, and
- the expenditure by surf life saving clubs and governing bodies in Australia

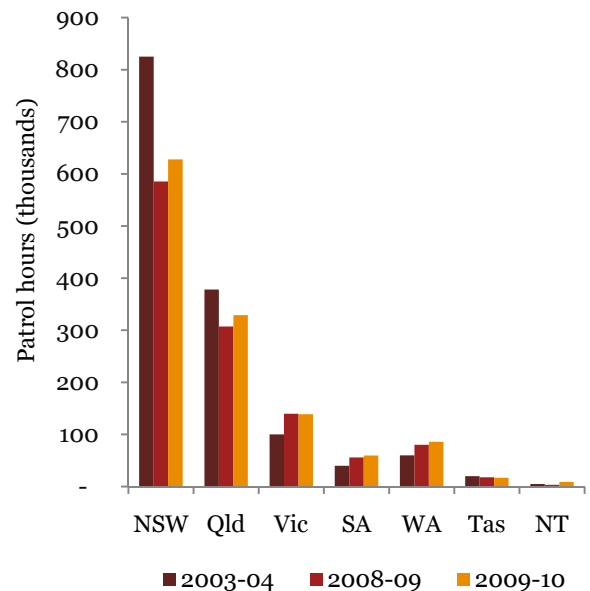
The value of volunteering time

Volunteering time is inherently related to the amount of time an individual can participate in paid work. There is an underlying trade-off associated with forgoing the ability to earn a wage. It is reasonable to assume there is a forgone wage due to the fact that over 87% of members aged over 16 years are employed.¹⁷ Hence, it is necessary to estimate the level of remuneration a paid employee would receive in a Surf Life Saving paid position.

In order to value the time spent volunteering, the gross opportunity cost wage rates are used. This is because, if the services provided by volunteers were provided instead by paid surf lifesavers, then the costs incurred by SLS clubs and governing bodies would need to cover gross wage costs including income taxes and other contributions.¹⁸

Ironmonger (2008 and 2009) utilises increases in the Australian Bureau of Statistics (ABS) national account estimate for 'average compensation per employee' to make estimates for volunteer wage rates for the year 2006, equal to \$24.09 per hour.¹⁹ When indexed to 2010 terms this value equals \$26.66 per hour. In this study, ABS values for the Average Weekly Earnings of an individual in full time work was used, which is equal to \$1,256 per week or \$33.50 per hour. This value has been used as part of the input estimation.

Figure 10: Total number of patrol hours, by State, 2009/10²⁰



In 2009/10, volunteer surf lifesavers patrolled a total of 1.3 million hours on Australian beaches. Volunteer hours represent those where surf lifesavers are on the beach and providing water safety services. Patrol hours were greatest in NSW and Queensland, with volunteers contributing 630,000 and 330,000 hours, respectively.

The total number of hours volunteered by surf lifesavers has declined from over 1.4 million hours in 2003 (Figure 10). It is important to note that this change may not actually represent a decline in patrol hours, but instead is the manifestation of better data collection systems at SLS, which over time, provides a more accurate estimate of patrol hours.

17. Data supplied by SLS member survey

18. This assumption assumes that if volunteer surf lifesavers did not provide services, then paid services would be required at the same times of the week, including those times (such as the weekends) that may typically be seen as 'leisure time' for volunteers.

19. The economic value of volunteering in Queensland, Ironmonger, D and Unpaid work and the Australian economy, Australian Bureau of Statistics

20. Data supplied by SLS

The following table displays the value of volunteer surf lifesaver time in each jurisdiction across Australia.

Table 6: Total value of volunteer surf life saving time, by State (\$million)

Jurisdiction	Value of patrol hours
NSW	21.0
NT	0.3
QLD	11.0
SA	2.0
TAS	0.6
VIC	4.7
WA	2.8
TOTAL (\$million)	42.4

Amount of personal expenditure related to Surf Life Saving

Individuals incur expenses in addition to forgoing the opportunity to earn income by volunteering. Volunteers may incur a variety of out-of-pocket expenses. If they are not reimbursed they represent a form of in-kind contribution to the organisation. Expenses can include, but are not limited to travel costs. Hence, it may be necessary to account for travel to and from the surf life saving club for all volunteers and surf lifesavers. Literature on evaluating the economic value of volunteering, including that of Ironmonger (2000), indicates that the value of travel should be set at 12.7% of forgone salary.²¹

The results of the SLS survey suggest that, while costs potentially attributed to travel may make up a significant portion of personal expenses, there may be additional costs not accounted for in the 12.7% value used by Ironmonger (2000). Respondents indicated that personal expenses may be valued at between 13.2% and 15% of forgone salary.

Hence, a value of 13% (a merger of best estimates) may provide a conservative estimate of travel and personal expenditure costs. Based on the above total patrol hours and the assumption of 13%, the cost of travel and personal expenses can be conservatively estimated at \$4.6 million.

Table 7: Value of travel expenses, by State (\$million)

Jurisdiction	Value of travel expenses
NSW	2.3
NT	0.0
QLD	1.2
SA	0.2
TAS	0.1
VIC	0.5
WA	0.3
TOTAL (\$million)	4.6

Expenditure by Surf Life Saving clubs and governing bodies

To estimate the full value of Surf Life Saving using the input approach, the expenditure of surf life saving clubs and state governing bodies should be captured. Expenditure by surf life saving clubs highlights the economic contribution that the clubs invest into the economy through operations.²² Self-reported data indicates that the total expenditure by Surf Life Saving entities in Australia was more than \$116 million in 2009/10. However, it is important to note that the expenditure of clubs is limited by resources, not the needs of the community.

Table 8: Total expenditure of surf life saving clubs and governing bodies (\$million)

Jurisdiction	Total expenditure
NSW	36.8
NT	0.8
QLD	32.3
SA	4.1
TAS	1.4
VIC	13.7
WA	8.3
Surf Life Saving Australia	19.2
TOTAL (\$million)	116.6

This represents an increase from 2005 expenditure equal to \$84.7 million.

21. *Measuring volunteering in economic terms*, Ironmonger, D.

22. *In this report, surf clubs and state bodies provided information on expenditure for the period 2009-10. Where data was not available, an extrapolation of data was undertaken. Further, it is important to note that there may be some overlap of expenditure across SLS bodies. However, it is expected that this level of 'double counting' would have a marginal impact on the overall estimate of the input approach.*

Summary of input approach

The sum of the value of patrol hours, personal expenses incurred as a result of volunteer activities and the expenditure of Surf Life Saving bodies determine the total value using the input approach. In total, the value of SLS services is estimated to be \$163.6 million, an increase from the 2005 estimate of \$28.8 million.

This method only captures a small aspect of the economic effects and may underestimate the true value of volunteer surf lifesaving.

Table 9: Total input approach value (\$million)

Jurisdiction	Total input value 2010
NSW	60.1
NT	1.1
QLD	44.5
SA	6.3
TAS	2.1
VIC	18.9
WA	11.4
SLSA	19.2
Total (\$million)	163.6

Using the input approach, the estimated value of Surf Life Saving services in Australia is approximately \$164 million.

3.3 Output-based approach

Measuring the value of SLS activities using an output-based approach is based upon the value of lives saved and avoided injuries as a result of SLS surf lifesaver and lifeguard activities.

Conceptually superior to the input approach, the output approach is usually difficult to apply as it requires data that is not usually available.²³ However, in this case data has been drawn from SLS, through the survey of surf lifesavers, and through known literature to undertake an estimate of the economic impact of Surf Life Saving on this basis.

Surf Life Saving activities can be classified as a combination of rescues and preventative activities. The value of lives saved as a result of Surf Life Saving activities can be calculated using the number of:

- rescues undertaken by SLS volunteer surf lifesavers and lifeguards, and
- preventative actions, if not undertaken by volunteer surf lifesavers, would have resulted in the need for a rescue

Preventative actions are typically in the form of warnings to swimmers and other beach users to avoid areas of hazard that might result in distress or drowning. These actions are essential and often under-recorded, without which the number of rescues may be much higher. Hence, the value of volunteer surf lifesavers extends beyond the reactive service of rescuing someone in need, to that of active prevention.²⁴

In order to determine the contribution of preventative actions to the overall value of Surf Life Saving services, it is necessary to identify the number of rescues that would occur if preventative actions were not performed. This would occur if SLS services were no longer available. Due to the broad nature of preventative actions and variations in reporting between surf life saving clubs, it is estimated that 1% of preventative actions would result in a rescue if Surf Life Saving were not available.

These total (adjusted) rescue figures are comprised of four major activities that would occur if volunteer Surf Life Saving services were not available at Australian beaches:

- drowning deaths
- permanent incapacitating injury, including a spinal injury or serious injury resulting in a coma
- minor injury resulting in the need for first aid treatment, and
- no injury or medical treatment required

²³ *Measuring the value of unpaid household, caring and voluntary work of older Australians*, De Vaus, D. Gray, M., Stanton, D

²⁴ *Encyclopedia of coastal science*, Schwartz, M.

Surf life saving clubs and SLS operational support and lifeguard services around Australia report the number of preventative actions, rescues and other aspects relating to beach safety (Table 10).

The information includes actions undertaken by volunteer surf lifesavers and SLS services, and does not include local government lifeguard or other marine rescue services. Thus, the figure of 18,500 represents a conservative quantification of total rescues and hence under represent the potential value of the Surf Life Saving activity in Australia.²⁵

Table 10: Total (adjusted) number of rescues by SLS in Australia, 2009/10 (including 1% of preventative actions)

Jurisdiction	Number of rescues (adjusted)
NSW	8,859
NT	487
QLD	6,338
SA	406
TAS	118
VIC	1,128
WA	1,171
TOTAL RESCUES	18,507

In the absence of Surf Life Saving activities:²⁶

- 5% of total rescues would have resulted in a drowning death
- 3% of rescues would have resulted in permanent incapacitation
- 14% of total rescues would have resulted in a minor injury needing first aid treatment; and
- 78% of total rescues would have resulted in no injury or rescue

These values were identified in a survey undertaken in 2005 of surf lifesaving experts.

To calculate the economic value of Surf Life Saving services, it is necessary to understand what would occur if the service was no longer provided.

The value of lives saved and injuries avoided through Surf Life Saving can be allocated to three main classifications, including avoided drowning deaths, permanent incapacitations and minor injuries. It is expected that in the absence of Surf Life Saving services during 2009/10, there would be:

- 596 additional drowning deaths (excluding rescues that results from a preventative action)
- 555 additional permanent incapacitations (including rescues that result from a preventative action)²⁷, and
- 2,591 additional minor injuries or first aid treatments

Drowning deaths

Volunteer surf lifesavers play a key role in preventing unnecessary drowning in patrolled areas and help to reduce the risk of fatality on Australian beaches.

The value of a statistical life is often used to estimate the benefits of reducing the risk of death. As noted by Abelson (2008), the value of a statistical life is most appropriately measured by estimating how much society is willing to pay to reduce the risk of death.

Methods to measure willingness to pay can vary, and include:²⁸

- direct measurement through a survey designed to uncover what people would pay to save or prolong life
- observing how much consumers pay for products that reduce risk of death or injury
- indirectly observing how much workers are willing to pay (through reduced wages) for an improvement in workplace safety

Value of a statistical life

The previous attempt to value volunteer Surf Life Saving services in Australia followed the estimates used by the Australian Institute of Criminology (AIC) and the NSW Injury Risk Management Research Centre (IRMRC).²⁹ Using the human capital approach, AIC values a life in 2004 terms at \$1.7 million or \$2.12 million in 2010 terms.

25. National Coastal Safety Report , SLS

26. Valuing an Icon: The Economic and Social Contribution of Surf Life Saving in Australia , Allen Consulting Group,

27. Monetary Value for Lives Saved: Issues and Controversies , Abelson P.

28. Valuing an Icon: The Economic and Social Contribution of Surf Life Saving in Australia ,Allen Consulting Group,

29. It has been assumed that rescues from a preventative action would have an impact of permanent incapacitations, but would be less likely to impact significantly on the number of drowning deaths.

*The value of a statistical life has been estimated by the Victorian Competition and Efficiency Commission to be equal to **\$3.7 million** and has been used as part of the estimation of the value of Surf Life Saving services.*

However, there has been significant research into valuing a statistical life, which has led to a review of the appropriate value.

A literature review was conducted of international and Australian values for a statistical life. Although values vary from \$3.2-\$15 million, they are significantly higher than those used in the past.

The Victorian Competition and Efficiency Commission (VCEC) has proposed a value using the willingness to pay method, which is suggested as the appropriate way to estimate the value of reductions in the risk of physical harm. Based on international and Australian research a credible estimate of the value of statistical life is \$3.5 million.³⁰ This value is used widely in Australia and is cited by the Commonwealth Department of Finance and Deregulation (Office of Best Practice Regulation) as the appropriate method and value to estimate a reduction in the risk of physical harm. A similar method has also been used by the Australian Transport Council to estimate the economic impact of road crash deaths.

The VCEC value of \$3.7 million, indexed to 2010 terms, has been adopted in this report.

Permanent Incapacitation

Recently, a non-financial approach to valuing human life has been developed, where loss of wellbeing and premature mortality – called ‘burden of disease and injury’ – are measured using a willingness to pay method based on a similar methodology to the VCEC value of a statistical life. In order to calculate the willingness to pay, or to avoid, permanent disability, the following were considered :³¹

1. The value of a statistical life year, equated to \$151,000
2. Burden of disease for spinal cord and traumatic brain injuries, which presents a portion of the total value of statistical life year
3. A total of 2,766 incidents of spinal cord and traumatic brain injuries in 2008
4. The total burden of disease from spinal cord and traumatic brain injuries, equal to \$5.7 billion in 2008

Hence, the cost, per incident per year of spinal cord and traumatic brain injuries (as a proxy for permanent incapacitation) is \$2.1 million.

Minor injuries and first aid treatment

Volunteer surf lifesavers and SLS lifeguards are able to address minor injuries and administer first aid, thereby reducing hospital and clinic visits and associated treatments. The Department of Health and Ageing lists current rates for consultations as equal to \$34.50³², which can represent the avoided healthcare costs resulting from the first aid services undertaken by SLS personnel.

30. Best Practice Regulation Guidance Note: Value of statistical life, Victorian Competition and Efficiency Council

31. The cost of traumatic SCI and TBI in Australia, Access Economics

32. Medicare Benefits Schedule Book, Category 1, Department of Health and Ageing

Results of Output Approach

The number of drowning deaths, permanent incapacitations and minor injuries are multiplied by their respective monetary values. In total these provide a value for the economic contribution of Surf Life Saving in Australia. A summary of values by State is included in Table 11.

Using the rescue numbers from 2010, Surf Life Saving services in Australia provide the greatest value in avoiding costs associated with drowning deaths, and overall the total value of lives saved and assisted, using the output method, is estimated at \$3.4 billion. The estimated value of Surf Life Saving in preventing:

- drowning deaths is \$2.2 billion
- permanent incapacitations is \$1.2 billion
- minor injuries and first aid treatments is \$90,000

In this study, a statistical life was valued at \$3.7 million (in 2010 terms) compared to \$2.1 million used in the 2005 valuation (in 2010 terms). When the total number of rescues used in the 2005 estimate of the economic impact of Surf Life Saving are applied to the value of a statistical life utilised by VCEC, the value of SLS in 2005 would be \$2.5 billion.

Surf Life Saving in NSW and Queensland comprise the majority of the entire value of Surf Life Saving in Australia; NSW alone contributes 48% of the value of lives saved. Overall, the increase in value of Surf Life Saving activities across Australia may be attributed to four factors:

1. The improved monitoring and recording of lifesaving activities and preventative actions by life saving clubs and services
2. An increase in the total number of rescues across all states, particularly Victoria, WA, Tasmania and NT, with NT increasing from less than 20 to more than 400 rescues during the period (see Table 10 for 2010 rescues)
3. A higher number of preventative actions, reflecting the activities of Surf Life Saving's pre-emptive role in promoting safety
4. An improved estimate of the statistical value of a life, which has seen an increase in this value from \$2.1 million to \$3.7 million per life in real terms

Table 11: Estimated value of lives saved and assisted using the output approach (\$million)

	Metropolitan 2010	Non-Metropolitan 2010	Total 2010
NSW	1,072	561	0.04
NT	56	31	0.00
QLD	703	401	0.03
SA	51	26	0.00
TAS	19	7	0.00
VIC	143	71	0.01
WA	198	74	0.01
TOTAL	2,241	1,172	0.09

Note that the values for each State and Territory will not add to the total due to rounding.

The total value of SLS services in Australia can also be broken down on a metropolitan and non-metropolitan basis by state and territory. The metropolitan areas of Australia include:

- Sydney, Wollongong and Newcastle in NSW
- Melbourne and Geelong in Victoria
- Perth in Western Australia, and
- Brisbane and the Gold Coast in Queensland.

The breakdown of benefits between metropolitan and non-metropolitan areas in Australia is highlighted in Table 12 below.

SLS services in metropolitan areas are estimated to be valued at over \$1.6 billion.

The proportion of value contributed in metropolitan areas has increased from 43% of total value of lives saved in 2005 to over 47% in 2010.

Although overall, the value of SLS services in NSW is greatest, the distribution of benefits between metropolitan and non-metropolitan areas varies. Their services are estimated to be valued more highly (\$768 million) in Queensland non-metropolitan areas than those in NSW non-metropolitan areas (\$694 million). This could be due to a large number of patrolled beaches in NSW located close to more highly populated areas.

It is clear that the value of SLS services in Australia is significant, not only in avoided injury and deaths of beach goers, but also in encouraging members to become active in the community.

Table 12: Estimated value of lives saved and assisted using the output approach - distribution of benefits between metropolitan and non-metropolitan areas in Australia (\$million)

	Drowning	Permanent Incapacitation	Minor First Aid	Total
	2010	2010	2010	2010
NSW	939	694	1,633	NSW
NT	86	1	87	NT
QLD	336	768	1,104	QLD
SA	32	45	77	SA
TAS	10	16	26	TAS
VIC	8	206	214	VIC
WA	196	76	272	WA
TOTAL	1,608	1,805	3,412	TOTAL

Note that the values for each State and Territory will not add to the total due to rounding.

Using the output approach, Surf Life Saving services have an estimated economic value of over **\$3.4 billion** to Australia.

Just over **47%** of lives saved and assisted occurred in metropolitan areas, which delivered an estimated economic value of **\$1.6 billion**.

3.4 Flow-on wider economic impacts

The non-market benefits (shown in the input and output methods) used to calculate the value of Surf Life Saving volunteers in Australia do not fully quantify the market effects of volunteer activities. These market effects have flow-on impacts for the overall Australian economy. Hence, an additional mechanism must be used to quantify these market values.

The economy-wide net benefits flowing from SLS's activities affect key economic aggregates, such as Gross Domestic Product (GDP). As volunteer activities help to save lives and avoid injury, the effects on the economy range from:

- Additional labour supply,
- Increased consumption, and
- Increased industry activity

All of these impacts have the flow-on effects of increasing Australia's competitiveness compared to the rest of the world.

Modelling flow on impacts of Surf Life Saving services

A Computable General Equilibrium (CGE) model was used to quantify the flow-on impacts of Surf Life Saving activities in Australia. PwC used the Monash Multi-Regional Forecasting (MMRF) model for this task³³. CGE modelling is used to estimate the direct and indirect economic net benefits flowing from SLS's activities.

The economy-wide benefits associated with the work of SLS was examined through two key impacts:

- *Lives saved*: lives saved directly contribute to the Australian economy by continuing to work. The input for this component was based on PwC estimates of the number of lives saved that are directly attributable to Surf Life Saving
- *Serious injury prevented*: in addition to lives saved, Surf Life Saving also helps prevent serious injuries, and the costs associated with long-run disability. This manifests in the model as an increase in the workforce participation rate and a decreased cost to government in terms of disability support

The modelling evaluates the long-run benefits of the additional labour supply.

Table 13: Benefits to Australia from macroeconomic aggregates (\$million)

	Benefit
Expenditure on	
Consumption	114
Investment	47
Government	37
Inventories	0
Exports	-11
Imports	33
GDP	154
Income from	
Capital	67
Labour	69
Other factors	3
Tax from all sources	14

The lives saved (and disability-free individuals) contribute significantly to the Australian economy, with increases in aggregate output nationally, as well as the output for each State and Territory individually. This translates to approximately 2,000 jobs in the economy, as industries expand to accommodate the additional labour.

The expansion in the labour force increases real gross domestic product by approximately \$154 million per annum (Table 13). A large proportion of the economy-wide benefit is driven by increases in consumption; part of this comes from the direct consumption of those people saved by SLS and part is driven by the additional income generated in other areas of the economy from their labour. The increase in industry activity also attracts an estimated additional \$67 million of capital to Australia.

The flow-on avoided loss of productivity impact to the broader economy from Surf Life Saving services is estimated at \$154 million.

33. The Monash Multi-Regional Forecasting (MMRF) model is one of Australia's most widely used CGE models. Developed by the Centre of Policy Studies at Monash University, MMRF is a model of the Australian economy. It has a detailed database based on Australian Bureau of Statistics Input-Output tables, expanded from The Enormous Regional Model database

The additional labour supply in Australia increases Australia's competitiveness compared to the rest of the world. As a first round impact, this increases exports. However, the increase in aggregate domestic consumption and government absorption — which increases the domestic price level — more than offsets this increase in competitiveness. This causes a net reduction in Australia's exports by \$11 million.

Real imports to Australia increase by \$33 million. This is driven by the increase in household income (which drives consumption), and the movement in the terms of trade. The increase in the terms of trade is brought about by the net increase in aggregate demand, nationally, which increases the domestic price level. This inflation causes an increase in the price of our exports.

All states and territories benefit from the activities of SLS. The distribution of the benefits is in proportion to the number of lives saved in each jurisdiction, and the overall distribution of the population.

Overall, volunteer surf lifesavers contribute to an additional \$154 million to the Australian economy (Table 14).³⁴ The breakdown of impacts at state level indicates that approximately 40% of flow-on effects benefit NSW (Figure 11). Although the ACT does not have dedicated surf lifesavers, benefits accrue to the Territory since residents of the ACT regularly travel to beaches in NSW and Victoria. Therefore, volunteers who save lives in NSW and Victoria also contribute to economic growth in the ACT.

It is important to note that this estimated value of flow-on impacts from SLS services does not include preventative health benefits, which cannot be accurately quantified using this CGE model.

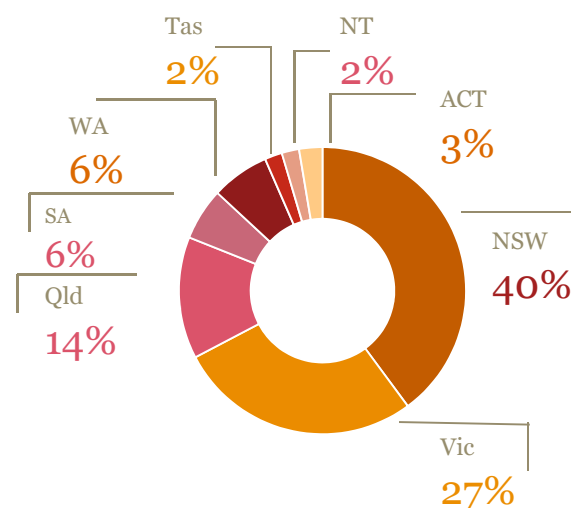
40% and 27% of flow-on economic effects for avoided productivity losses can be attributed to NSW and Victoria, respectively.

Table 14: Flow-on economic effects to states of Surf Life Saving volunteer activities (\$ million)

	Value
ACT	4
NSW	61
NT	3
SA	9
TAS	3
VIC	42
QLD	21
WA	10
TOTAL	154

Note that the values for each State and Territory will not add to the total due to rounding.

Figure 11: Distribution of flow-on wider economic benefits, by jurisdiction



34. The CGE analysis does not include any improvement in the productivity of SLS volunteers as a result of their work for SLS. If this effect were included, it would only have a small impact on the aggregate, economy-wide results. CGE modelling is only concerned with net improvements in productivity at the margin (i.e. improvements that would not have been present were it not for the existence of SLS). Given that volunteers for SLS are likely to be fit and active people regardless of their life saving activities, the impact of volunteering on their labour productivity elsewhere in the economy would be expected to be minimal.

3.5 Conclusion

Surf Life Saving, involving both volunteer surf lifesavers and SLS lifeguards, is a cultural icon of Australia. It is important to quantify the true value of these services in avoiding drowning deaths and preventing injury.

SLSA is Australia's major water safety and rescue authority and is one of the largest volunteer organisations in the country, with over 150,000 members. In 2009/10, volunteer surf lifesavers and SLS lifeguards carried out approximately 12,000 rescues and without the preventative actions of surf lifesavers, it is estimated that over 18,000 rescues would have been needed on Australian beaches during the year.

The output model is the preferred method of determining the value of volunteer activities as it accounts for social willingness to pay and the cost savings from avoided deaths and injuries.

However, in order to include wider economic or community benefits, it is necessary to include these flow-on impacts in the overall value of these services. Thus, the value of Surf Life Saving's coastal drowning and injury prevention efforts to Australia is approximately \$3.6 billion per year.

Comparing the output value with the input value provides a cost-benefit ratio (for every dollar spent on Surf Life Saving, what is the value of the lives saved and the injuries avoided):

- Assuming that volunteer surf lifesavers are paid a salary (and included as a cost), the cost-benefit ratio is 21.7 to 1. This means that for benefits to equal costs, the benefits of Surf Life Saving would have to decrease by 95%, which would result in the prevention of 560 less drowning deaths in 2009/10, and
- Assuming salaries are not paid, the cost-benefit ratio is 29.3 to 1, which means that the benefits of Surf Life Saving would have to decrease by 97%. This would result in the prevention of 578 drowning deaths in 2009/10

Under either scenario, the benefits of Surf Life Saving far outweigh the costs, further proving its unique and significant value to the Australian community and economy.

The total estimated economic value of Surf Life Saving's coastal drowning and injury prevention efforts to Australia is **\$3.6 billion in 2009/10.**

Key terms

<i>Blackspot</i>	An area with a high concentration of coastal/ocean incidents and a high probability/risk of ongoing reoccurrence.
<i>CGE</i>	Computable General Equilibrium model
<i>Drowning</i>	The process of experiencing respiratory impairment from submersion/immersion in liquid.
<i>Drowning death</i>	A fatality arising from the process of respiratory impairment as a result of submersion/immersion in liquid.
<i>Lifeguard</i>	Typically a paid employee at a beach or other aquatic environment whose job it is to rescue people in danger of drowning or prevent them getting into a dangerous situation.
<i>Prevention</i>	Where intervention by a lifesaving resource averts a person/s from getting into a potentially life threatening situation.
<i>Rescue</i>	Where intervention by a lifesaving resource removes a person/s from a life threatening or potentially life threatening situation.
<i>SLS</i>	Surf Life Saving
<i>SLSA</i>	Surf Life Saving Australia
<i>Surf lifesaving</i>	Referring to the activity of saving lives – ‘lifesaving’ should always be one word when used in the verb form. ‘Life’ and ‘saving’ should be two separate words when referring to a club, organisation, event or registered business name, (eg: Surf Life Saving Australia, Australian Surf Life Saving Championships).
<i>Surf Life Saving</i>	Refers to the organisation, including: SLS, state centres, branches, support services and clubs. Always in capital letters.
<i>Surf life saving clubs</i>	Collective term for all, or a small group of Surf Life Saving affiliated clubs. Not ‘surf lifesaving clubs’.
<i>Surf lifesaver</i>	Typically a volunteer at a beach or other aquatic environment whose role it is to rescue people in danger of drowning or prevent them getting into a dangerous situation. This should only be capitalised when referring to a specific surf lifesaver.

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