

The economic value of boating and marine industries associated with the use of Gippsland Lakes



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Executive Summary

Objectives and context

The Gippsland Lakes refers to the area surrounding the network of lakes in the East Gippsland region of South-eastern Victoria. The Gippsland Lakes provide a major hub for tourism for Gippsland, and are home to a large recreational boating fleet and marine industries.

The purpose of this study was to assess and quantify the economic impact of recreational boating in the Gippsland Lakes region and to compare the demand and supply for recreational boating infrastructure. More specifically, the two key project objectives were to:

1. Undertake a boating usage and demand study of commercial and recreational boating in the Gippsland Lakes region.

This component of the project considered the current level of demand for and supply of boating infrastructure, modelled future demand, and estimated current and future unmet demand for boating infrastructure.

2. Estimate the economic contribution of commercial and recreational boating to the Gippsland Lakes region.

This component of the project quantified the impacts on the local and State economy of boating activities in the Gippsland Lakes region.

The study considered all types of recreational and commercial boating except commercial fishing. Sectors within the study scope included recreational fishing and boating, yachting and other non-fishing commercial activities (mainly tourism).

Through the economic modelling, other sectors included in the scope included retail, accommodation and food services, boating repairs and manufacturing, and other support services.

The catchment area local users for this study were defined as the Local Government Areas (LGAs) of East Gippsland and Wellington. Figure 2 demonstrates the catchment area for this study. Tourism data for East Gippsland Shire and Wellington Shire was used to capture day trip and overnight visitation from outside the catchment.

Figure 1 Catchment area of study



Key assumptions

The analysis and conclusions have been underpinned by:

- A range of assumptions, derived through trend analysis
- Regional statistics.

Current population data has been sourced from the Australian Bureau of Statistics, and future population estimates have been sourced from the Victoria in the Future (VIF) projections from the Department of Transport, Planning and Local Infrastructure (DTPLI) suggests that future population growth from 2011-2031 will be 1.38% per annum for East Gippsland and 0.58% per annum for Wellington Shire.

The level of boat ownership is the key driver of demand for marine infrastructure. Information and data analysed on boat registration provides an indication on the profile of boating demand in the Gippsland Lakes study area. Combining demographic trends with estimates of boating demand trends can help build a picture of what future infrastructure requirements may be around the Gippsland Lakes region.

In 2013, there were 12,658 boats registered in the Gippsland Lakes region. Registrations in Gippsland for the period 2009 to 2012 increased by approximately 790 vessels, an average annual increase of 1.6% which is slightly below the state average of 1.7% per annum. Future boat registrations have been estimated for the period to 2040 based on trend analysis.

In terms of frequency of boats, there were three user groups:

- Local boat users – these averaged 16 days of boating per annum
- Day trippers (non-locals) – these averaged 7 days of boating per annum
- Multi-day visitors (non-locals) – these averaged 6 days of boating per annum.

For tourists, the most popular activity reason for visiting the Gippsland Lakes was fishing (54%) followed those holidaying in the Gippsland region (23%). This illustrates the significance of the Lakes to local tourism. The majority of the tourists were from elsewhere in Victoria, with a small number from interstate.

Daily expenditure estimates for local and visiting boat users was derived from the 2013-14 Gippsland recreational fishing survey conducted by the Department of Environment and Primary Industries (DEPI). This found that total expenditure per boating trip was:

- \$38 for local day trippers
- \$170 for non-local day trippers
- \$511 for non-local multi-day trippers.

Infrastructure supply and demand

The study compared the current and future demand and supply of recreational boating infrastructure in the Gippsland Lakes region.

Recreational boating infrastructure includes a range of storage and boat ramp facilities, including berths, moorings, jetties and boat ramps. The existing supply of facilities was identified through a range of documents including the *Gippsland Boating Coastal Action Plan 2012*. While consultation revealed a range of plans for new infrastructure developments, these are generally unfunded, and modelling has been undertaken on the assumption that infrastructure supply and capacity is fixed.

Demand for recreational boating has been increasing in Gippsland and Victoria more broadly in response to population growth, increased interest in the community and higher levels of boat ownership. The demand analysis considered four categories of infrastructure, those being boat ramps, berths, temporary or destination jetties and swing moorings. Demand estimates were driven by:

- Existing population and population growth trends
- Expected trends in local boat registrations
- Expected trends in the characteristics of the recreational boat fleet
- Expected visitation trends.

An important consideration in providing infrastructure in the Gippsland Lakes area is adequately meeting infrastructure demand in peak periods. Many of the facilities are built to provide sufficient infrastructure for average demand, however, during periods of high boating activity, a number of facilities are put under strain and can exceed capacity.

Capacity pressures can lead to 'unmet' demand or a reduced number of boaters seeking to use Gippsland Lakes during peak periods as they may seek alternative options which fewer infrastructure/facility capacity constraints.

Analysis for berth and swing mooring demand (boat storage) found that in all years over the period 2012 to 2040, boat storage demand exceeds supply. This appears to match the feedback from facilities managers both in stakeholder consultation as part of this study, and as part of a Gippsland Lakes Facility Managers Survey, which noted that the region has few vacant wet berths¹ vacant, and an approximately 500 applicant waiting list². This analysis is illustrated below. Demand has been extrapolated based on anticipated trends in population growth and boat ownership within the catchment area as well as expected growth in tourism. Supply is assumed to be fixed over the forecast period.

Table 1 Berth Demand

Year	2009	2012	2014	2020	2030	2040
Total Facilities Demand (including Swing Moorings and itinerant berths)	2,983	3,131	3,208	3,393	3,766	4,185
Total Facility Supply (fixed)	2,623	2,623	2,623	2,623	2,623	2,623
Gap	360	508	585	770	1,143	1,562

Demand for boat ramps was found to be greater than supply during peak periods (summer, public holidays and events). The projected demand for boat lanes has been calculated based on a rate of 40 boats per lane per day. The table suggests that the number of boat ramps meets demand in off-peak and average demand but supply is exceeded by demand in the on-peak times in all cases. It does not take account of those ramps which may be sub-optimal (e.g. in poor condition, or where the water is too shallow) and so may have limited use. This could mean that the 'real' supply of boat ramps is less than estimated.

Table 2 Boat ramp demand

Year	Existing Lanes	2009	2012	2015	2020	2030	2040
Off-Peak	43	20	21	21	22	25	28
Average		34	36	37	39	44	48
On-Peak		49	52	53	56	62	69

Note: Blue indicates exceeded demand exceeds supply

Economic analysis

The final component of the project considered the annual economic impact of recreational boating on the Gippsland Lakes region.

The economic impact was driven by expenditure from local and visiting boat users into the local economy. Key sources of data included boat registrations, tourism data, and expenditure estimates from the DEPI survey.

Overall, the total net impact of the recreational boating industry in Gippsland is estimated at \$163.0 million. This includes:

- First round or direct economic impact of \$51.4 million and a flow on or indirect economic impact of \$111.6 million.

¹ This may not include privately owned berths, licensed through the Department of Environment and Primary Industries. Stakeholders have advised that these may not be fully occupied.

² Facility Managers Survey 2007 Appendix A - <http://www.gcb.vic.gov.au/boatingstudy/Appendix%20A.pdf>

- The majority of the economic impact is from tourism, with Day Trips and Overnight/Multi day visitors accounting for 68.4% of total impact.

The results of the economic modelling are outlined below.

Table 3 Estimated value add impact, Gippsland Lakes boat users \$2014

Component	Initial Impact (\$m)	Flow-on impact (\$m)	Total impact (\$m)
Local User	\$13.0	\$28.5	\$41.5
Day trip visitor	\$3.5	\$7.6	\$11.1
Overnight / Multi day visitor	\$34.8	\$75.6	\$110.4
Total	\$51.4	\$111.6	\$163.0

Employment impacts both direct and indirect were also estimated using Input-Output multipliers. These were estimated for all visitation types. The results show that estimated direct and flow-on employment gain resulting from recreational boating totalled 2,814 Full time Equivalent (FTE) jobs. The results are outlined in Table 20.

Table 4 Estimated employment impact, Gippsland Lake boat users

Component	Initial Impact	Flow-on impact	Total impact
Local User	182	418	599
Day trip visitor	90	112	202
Overnight / Multi day visitor	892	1,120	2,012
Total	1,164	1,649	2,814

1.0 Project Overview

1.1 Project context and objectives

AECOM Australia Pty Ltd (AECOM) was engaged by the Boating Industry Association of Victoria (BIAV) on behalf of the Gippsland Lakes Ministerial Advisory Committee (GLMAC) and Gippsland Ports (GP) to undertake economic research to determine the economic value of boating and marine industries associated with the Gippsland Lakes (including ocean access through the entrance).

The Gippsland Lakes are located in the south-east of Victoria, and consist of a network of lakes that include Lakes Wellington, Coleman, Reeve, King and Victoria. The Lakes provide a major hub for tourism for the wider Gippsland region, with the ports at Lake Entrance, Metung, Paynesville and Loch Sport, along with the Twin Rivers (Nicholson and Tambo) being home to a large recreational boating fleet and marine industries.

A 2012 study of tourism in the region found that:³

- 1.2 million people visited the East Gippsland Region in 2011
- This represented a 16.5% growth in tourism from the previous year
- A significant number of tourists took part in fishing and boating activities as part of their trip (13% of day trip visitors and 23% of overnight visitors).

There is a range of boating and marine infrastructure that serves the region, including piers, jetties, boat ramps, marinas and other assets. Increasing visitor numbers as well as population growth are likely to place pressure on existing infrastructure.

This project had two key objectives. These were to:

1. Undertake a boating usage and demand study of commercial and recreational boating in the Gippsland Lakes region. This component of the project:

- Considered the current level of demand for and supply of boating infrastructure in the Gippsland Lakes region
- Estimated future demand for boating infrastructure in the region
- Estimated the level of latent (or unmet) demand now and in the future for boating infrastructure.

2. Estimate the economic contribution of commercial and recreational boating to the Gippsland Lakes region. This component of the project:

- Quantified the impacts on the local and State economy of boating activities in the Gippsland Lakes region.

1.2 Project background

The Victorian Government established the GLMAC in 2011, to assist the delivery of its election commitment to improve the health of the Gippsland Lakes.⁴ The role of the GLMAC was to advise Government on enhancing the environmental value and quality of the region, whilst balancing the needs of economic development, recreation and the local community.

A key output of the GLMAC was the *Gippsland Lakes Environmental Strategy* ('the Strategy'), released in 2013. The strategy provides a framework for environmental, economic and recreational management of the Gippsland Lakes over the next ten years.

While the Strategy is largely concerned with preserving and enhancing biodiversity, environmental values and ecosystem dynamics, it also recognises that there is an important role for the region in supporting cultural, social and recreational values, and in facilitating economic opportunities.

³ *Gippsland Market Profile: Year ending December 2012*, Tourism Victoria

⁴ "Vic Coalition announces Gippsland Lakes Ministerial Advisory Committee", press release from the Hon Peter Ryan MP, 22 November 2011.

In particular, the Strategy includes objectives to:

- Identify, and prioritise, key on-water and land-based infrastructure improvements to support sustainable recreational and commercial use of the Lakes. This objective recognises that the Gippsland Lakes is an important destination for boating by both residents and visitors
- Develop, enhance and market appropriate Lakes-based and nature-based tourism. This recognises that the natural environment forms the basis for the growth and sustainability of the tourism sector in the region
- Support social and recreational opportunities. In the region, many of the recreational activities are based on access to the water, both ocean front and the Gippsland Lakes.

This economic study will support the ongoing work of the GLMAC through the provision of robust estimates about the importance of boating to the region, and the role of infrastructure in supporting that industry.

Lakes Entrance ocean access business case

Gippsland Ports and the Department of Transport, Planning and Local Infrastructure (DTPLI) has developed a business case to ensure that adequate ocean access from the Gippsland Lakes to Bass Strait is maintained.

This report seeks to support the business case for ocean access, by providing an assessment of the economic significance of the Lakes region both to Gippsland and to the broader Victorian economy.

Project scope

The study considered all types of recreational and commercial boating except commercial fishing. The commercial fishing sector is the subject of a separate economic study.⁵

Boating sectors that were included in the study included the following:

- Recreational fishing
- Recreational boating
- Yachting, including intra-state, national and international
- Non-fishing commercial activities, mainly tourism based.⁶

Through the economic modelling, other sectors included in the scope included retail, accommodation and food services, boating repairs and manufacturing, and other support services.

The analysis that follows was based on the concept of a total catchment area which could be defined as local visitation or residents. For the purpose of this study, this catchment area is the Local Government Areas (LGAs) of East Gippsland and Wellington. Figure 2 (overleaf) demonstrates the catchment area for this study.

⁵ *Economic Value of Commercial Fishing Operating out of Lakes Entrance (Port of Gippsland Lakes)*, 6 February 2014

⁶ Please note that fishing by tourists was considered to be a tourism rather than a commercial fishing activity.

Figure 2 Context Map



1.3 Structure of this report

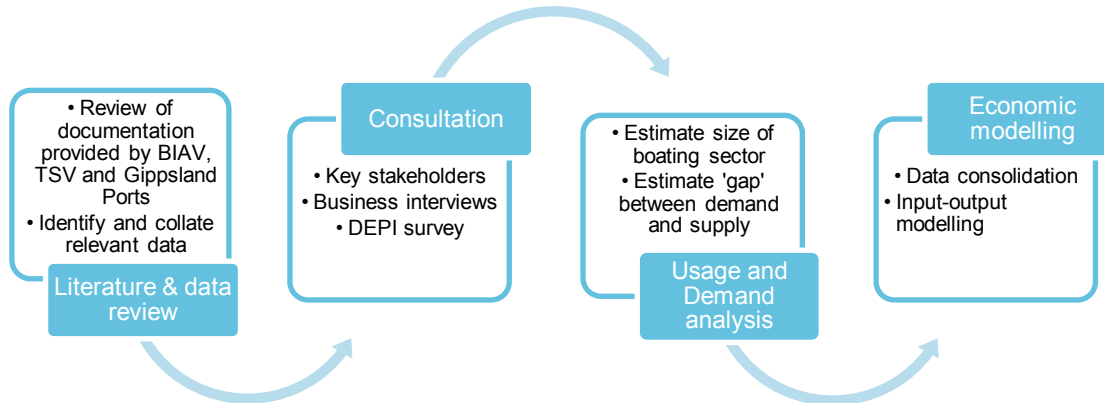
The remainder of the report is structured as follows:

- Section 2 provides a brief overview of our methodological approach
- Section 3 provides a brief overview of the Gippsland study area and boating characteristics
- Section 4 contains the assessment of current and future infrastructure supply and demand
- Section 5 contains the assessment of current and future economic contribution of boating to the local and State economy
- Section 6 contains the key findings and messages from this report.

2.0 Methodology

The methodology for this assignment comprised a number of stages and analytical approaches. These are summarised below.

Figure 3 Methodology for the study



The key components of the methodology are briefly described in the following table.

Table 5 Brief overview of methodological components

Type	Documents Reviewed
Literature review	This comprised review, data extraction and collation from the following: <ul style="list-style-type: none"> - DEPI Survey Data completed by boat users - Relevant documentation on recreational boating and the strategic documents on the Gippsland area. Including: <ul style="list-style-type: none"> • Bays and Maritime Initiative Boat Ramp Upgrades (Connell Wagner) (2008) • National Boating Usage Study Trip Analysis (National Marine Safety Committee (2010) • The Economic Value of Boating in the Bays Assessment of Port Phillip and Westernport Bays (Ernst & Young) (2009) • Gippsland Boating Coastal Action Plan 2012 • Gippsland Lakes Boating Amenity and Sustainable Infrastructure Study (BECA) (2008).
Consultation	<ul style="list-style-type: none"> - A comprehensive stakeholder consultation program: <ul style="list-style-type: none"> • Peak bodies (BIAV, Business Tourism East Gippsland) • Policy makers (such as Gippsland Lakes Ministerial Advisory Committee & Transport Safety Victoria) • Commercial and Recreational boat operators - A survey of boat users in the Gippsland Lakes area. There were 393 survey responses in total. The survey was conducted through DEPI.
Usage and Demand Analysis	This included the following: <ul style="list-style-type: none"> - Estimate the size of the recreational boating sector on the Gippsland Lakes and associated level of demand for boating services - Estimate the gap (if any) in demand for infrastructure and its current supply.
Economic modelling	This included the following: <ul style="list-style-type: none"> - Using estimated expenditure profile of the Gippsland Lakes boat users. (Including local, day trip, multi day and international users) to create initial spend estimates of boat users in the Gippsland Lakes study area. - An input-output model using Australian Bureau of Statistics derived multipliers to capture indirect (flow-on) economic and employment impacts.

3.0 Gippsland Lakes study area & boating overview

This section considers the demographic, economic and geographic scope of the project, as well as profiles boat users. The section outlines some of the assumptions used in the economic modelling.

3.1 Demographics

Key characteristics of the Gippsland Lakes region's demographic profile are outlined below.

Total Population

As of the last census in 2011, the estimated residential populations of East Gippsland and Wellington Shires were 40,037 and 41,335 persons respectively.

For East Gippsland, this represents an increase of 2,159 persons between 2006 and 2011 at a rate of 1.06% and for Wellington an increase of 1,360 at a growth rate of 0.67%. This is lower than the average for regional Victoria at 1.41%.⁷

The largest urban centres in Wellington Shire are Sale and Maffra, with populations of 14,259 and 4,262 respectively. In East Gippsland, the largest centres are Bairnsdale (13,243 residents) and Lakes Entrance (5,695 residents).⁸

Key population growth areas since 2006 are around Paynesville, Lakes Entrance and Bairnsdale in East Gippsland and Rosedale in the Wellington region.

Table 6 Estimated Resident Population of Gippsland Lakes

Locality	2006	2011*	Population Change (2006-2011)	Annual Average Growth Rate
East Gippsland (LGA)	40,037	42,196	2,159	1.06%
Wellington (LGA)	40,080	41,335	1,255	0.62%
Total Study Area	80,117	83,636	3,519	0.86%
Regional Victoria	1,383,525	1,483,778	100,253	1.41%

Source: ABS Census, 2011, * provisional statistic

Age Profile

As of 2011, the median age for East Gippsland and Wellington Shires was 47 and 41 years respectively, compared to 37 years for the state of Victoria.

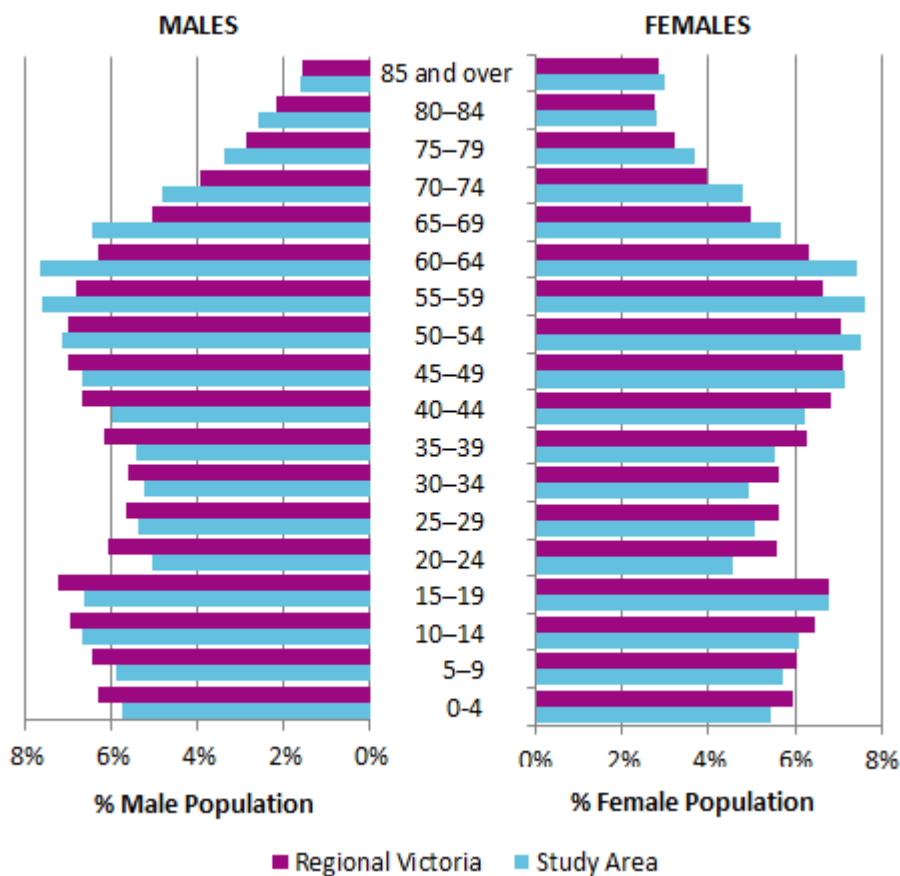
The Gippsland Lakes study region has an older age profile with a high proportion of the population over the age of 45 (49.1%) compared with 38.7% for the state of Victoria.

The proportion of children is marginally lower than the state average of 18.3%. However, the largest difference between the study area and state average appears in the 25-44 age category, where the representation at state level is 29.1% and the Gippsland Lakes is 21.5%.

⁷ Australian Bureau of Statistics Census Data, *Community Profiles*

⁸ Australian Bureau of Statistics Census Data, *Community Profiles*

Figure 4 Population Pyramid for the Gippsland Lakes Region and Victoria



Source: ABS Census, Catalogue 3225.0

Future Population

Victoria in the Future (VIF) projections from the Department of Transport, Planning and Local Infrastructure (DTPLI) suggests that future population growth is expected to be slightly above the state average (1.33%) for East Gippsland, at a growth rate of 1.38% between 2011 and 2031.

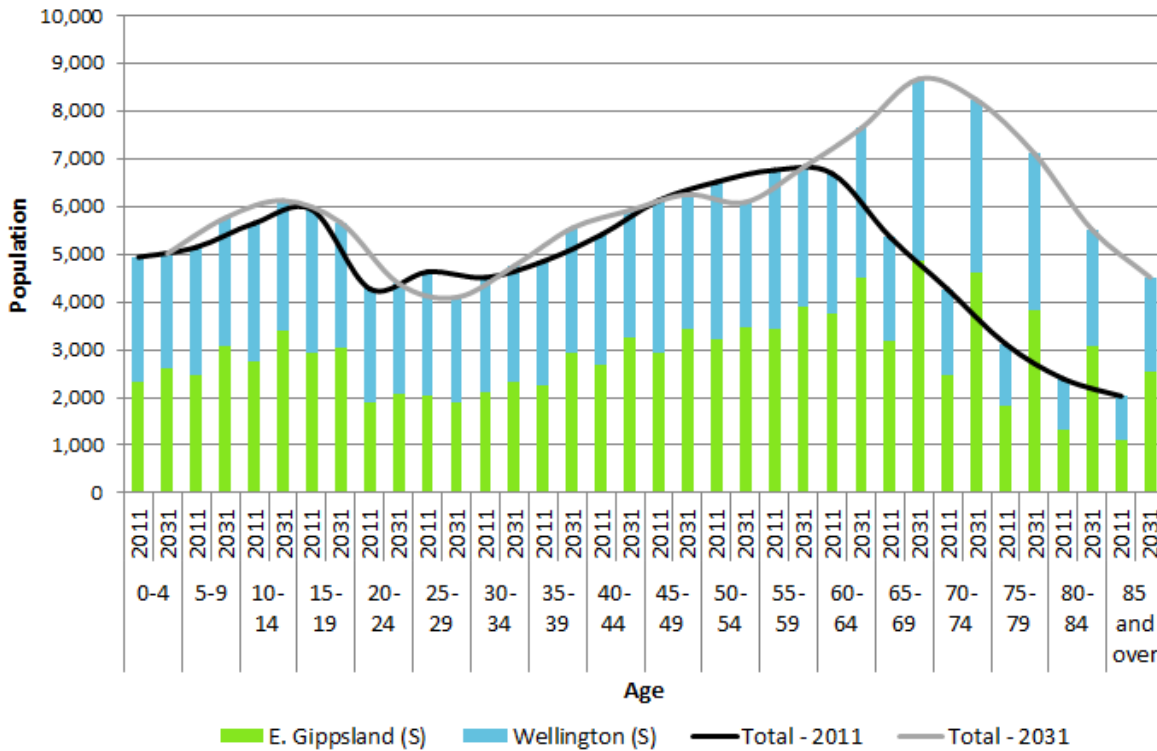
The expected population growth for Wellington is expected to be lower, reaching a total resident population of 49,276 by 2031 at a growth rate of 0.58%.

In total, this increase equates to around an additional 19,500 residents in the Gippsland Lakes study area between 2011 and 2031. Much of the additional growth is expected in the South-West of the East Gippsland and the Bairnsdale area (an additional 11,261 residents are expected in Bairnsdale and 1,744 in the South West).

The VIF projections suggest that population growth can be expected across all age groups. There is a likely to be an ageing of the population by 2031, with over 30% of the population in expected to be over the age of 65.

Figure 5 demonstrates this trend.

Figure 5 Population by age group, Gippsland Lakes Region



Source: Victoria in the Future, DTPLI 2012

3.2 Regional economy

The Gippsland economy experienced a growth rate of 2.0% over the last decade. This is comparable to regional Victoria figure of 2.2% but below the state average of 3.5% over the same period.⁹

The key employment sectors in the study area included health services (13%), retail trade (12%) and the agriculture, forestry and fishing sector (10% of all employment).

Although the number of jobs in agriculture, forestry and fishing has declined in the last decade, the number of businesses in this industry has increased significantly. With annual growth of 2.9%, agriculture, forestry and fishing businesses now represent 30% of all businesses in the study area. Table 7 presents a further breakdown of business registration data.

Fishing represents a significant component of the economies of East Gippsland and Wellington Shires. In addition to recreational fishing, commercial fishing is also an important contributor to economic activity. The June 2014 report, *Economic Value of Commercial Fishing Operating out of Lakes Entrance*, found that, in 2012-13:

- The commercial fishing catch for boats operating in and from the Gippsland Lakes was valued at \$27.5 million
- Total fishing-related output (commercial catch, processing and seafood trade industries) was valued at \$44 million
- The total impact on Gross Regional/State Product from commercial fishing totalled \$29.3 million.¹⁰

⁹ http://www.dpcd.vic.gov.au/__data/assets/pdf_file/0008/156869/Draft-Gippsland-Regional-Growth-Plan-Background-Report-PDF-7.9-MB.pdf

¹⁰ Econsearch and Roberts Evaluation, *Economic Value of Commercial Fishing Operating out of Lakes Entrance (Port of Gippsland Lakes)*, June 2014

The tourism industry is also a significant contributor to Gippsland's economy¹¹. East Gippsland Shire has estimated that the total level of visitor expenditure was around \$308 million in 2012, and tourism employed 1,504 people¹². A 16.5% increase in visitor numbers for the year suggests that tourism is likely to continue to be strong in the region. Wellington Shire council reports similarly positive results with 937 jobs linked to the tourism industry and \$130 million in gross output in 2011.

Table 7 Registered businesses by industry, 2011

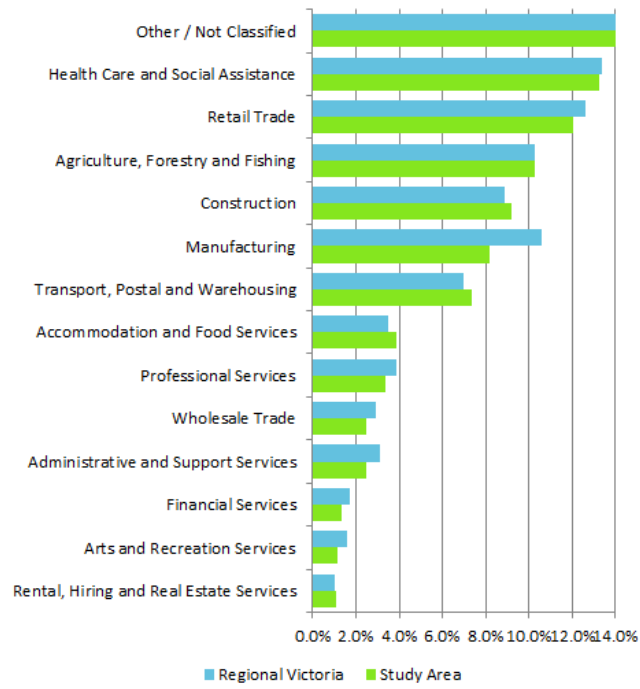
Sector	Number	Percentage	Vic.
Agriculture, Forestry and Fishing	2,609	30.9%	7.0%
Construction	1328	15.7%	16.4%
Retail Trade	641	7.6%	7.1%
Rental, Hiring and Real Estate Services	621	7.4%	10.6%
Transport, Postal and Warehousing	444	5.3%	6.1%
Professional Services	430	5.1%	12.6%
Accommodation and Food Services	422	5.0%	4.1%
Manufacturing	321	3.8%	4.6%
Health Care and Social Assistance	243	2.9%	4.9%
Administrative and Support Services	176	2.1%	3.8%
Wholesale Trade	134	1.6%	4.0%
Arts and Recreation Services	90	1.1%	1.4%
Other or not classified	614	7.2	9.3%
Total	8,433	100.0%	100.0%

Source: ABS Census, Catalogue 8165.0

¹¹ ABS high level industry classifications do not include tourism. Tourism is a subset including accommodation, cafes and restaurants, tour operators, museums and arts.

¹²

Figure 6 Industry by size

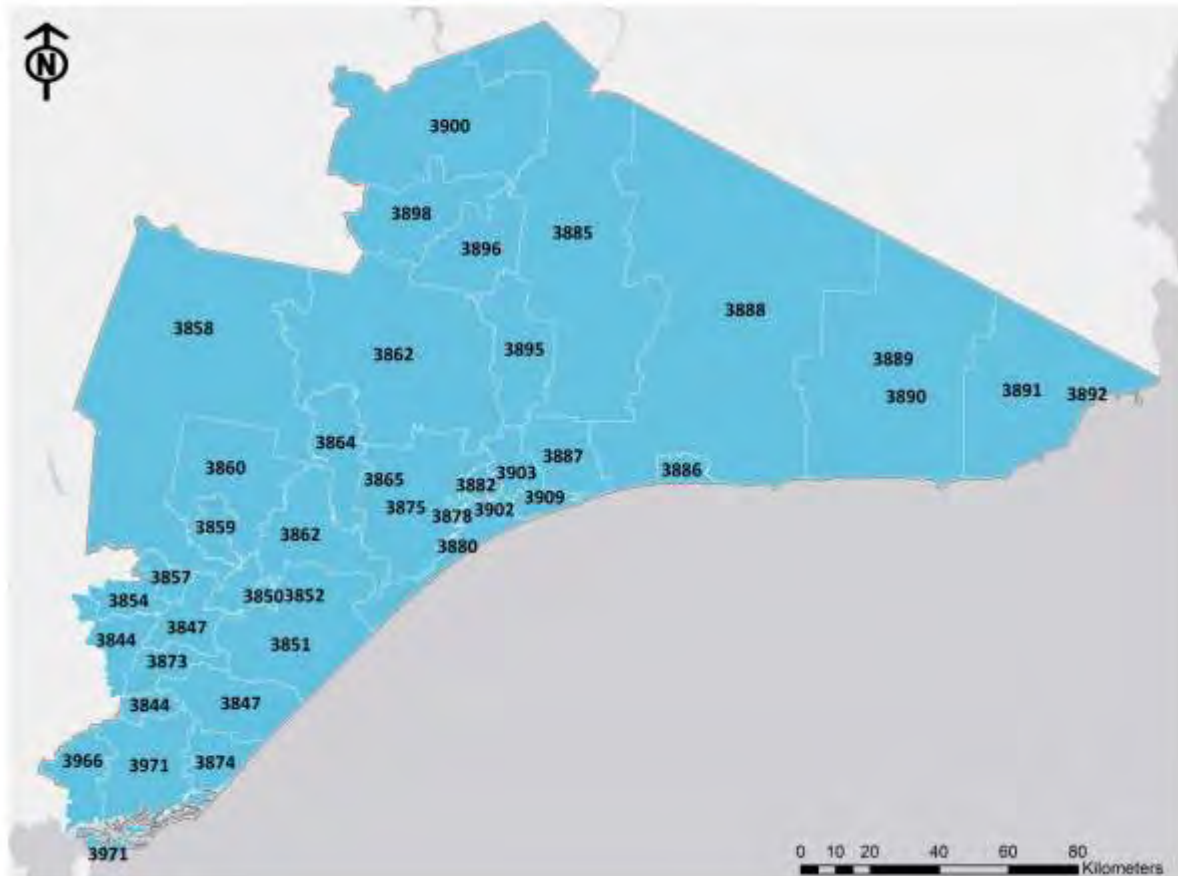


Source: ABS Census, Catalogue 8165.0

3.3 Characteristics of boat owners in the Gippsland Lakes study area

The following map displays the catchment area for the Gippsland Lakes study area by postcode. Postcode vessel registration data has been provided by BIAV and provides the basis for the following section.

Figure 7: Gippsland Postcode Catchment



Boat Ownership Characteristics

The level of boat ownership is the key driver of demand for marine infrastructure. Information and data analysed for this section on boat registration provides an indication on the profile of boating demand in the Gippsland Lakes study area. Combining demographic trends with estimates of boating demand trends can help build a picture of what future infrastructure requirements may be around the Gippsland Lakes region.

In 2013, there were 172,744 boats registered in Victoria. This represents an increase in the number of boat registrations of around 1.7 % p.a. from the 2009 total.¹³ With a population of approximately 5.7 million in Victoria, this suggests a boat ownership per capita ratio of around 1:34, which is a decline in boat ownership per capita from 1:33 in 2011 and 1:31 in 2001, suggesting boat ownership is not growing at the same level as state population.

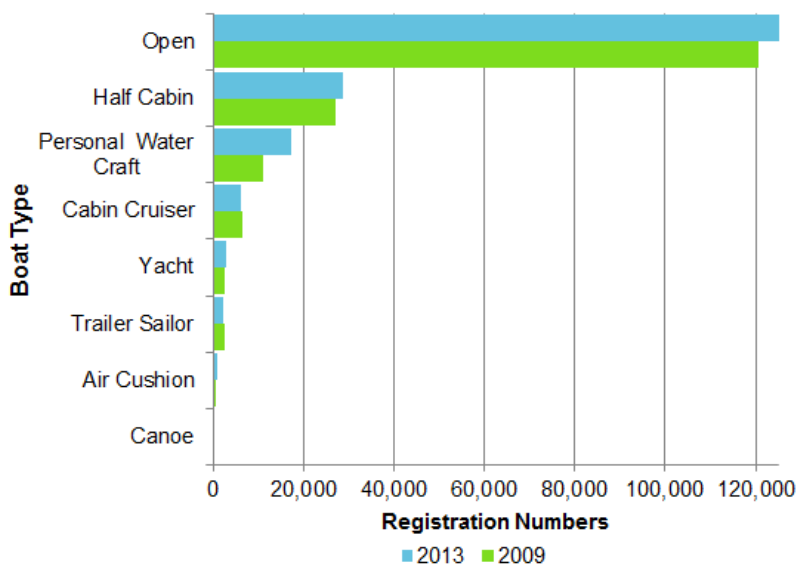
Of the registrations recorded, around 6.8% (12,658) are registered within the Gippsland region. Registrations in Gippsland for the period 2009 to 2012 increased by approximately 790 vessels, an average annual increase of 1.6% which is slightly lower than state average (1.7%). In 2012, the boat ownership per capita for the Gippsland Study area was approximately 1:7, suggesting that boat ownership rates are high in Gippsland compared to the state average.

The data also provides an indication of the type of boats which are most commonly used by boat users registered in Victoria. Open boats are the most common type, forming around 70% of boat registrations in 2012. Open boats registrations have increased at approximately 1.4% per annum over the 2009 to 2013 period. With a strong base

¹³ Marine Safety incident and demographic report July 2013 to April 2014, Transport Safety Victoria

of registrations, increased demand has the potential to place pressure on existing infrastructure most suitable for this type of boat, such as boat ramps and berths. Strong growth has also occurred in the personal water craft category with an additional 6,030 vessels registered between 2009 and 2012. It should be noted that air cushion (5.8% p.a.), half cabin (1.5% p.a.) and canoe (26% p.a.) categories have all experienced high levels of growth, albeit from a low base. Figure 8 demonstrates the boat type trends for all boat categories.

Figure 8 Boat Registrations by Boat Type in Victoria

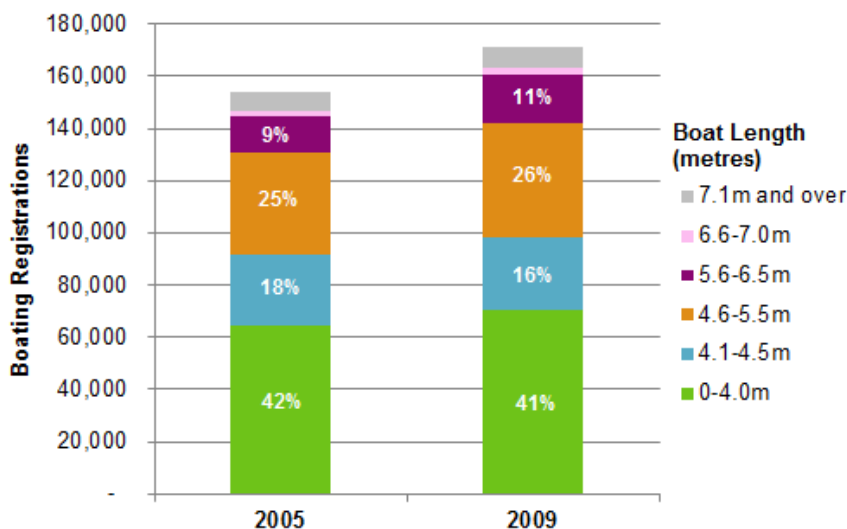


Source: Transport Safety Victoria, 2012

Of the boats registered in the Gippsland catchment area (see Figure 7), the vast majority are under 5.5 metres (approximately 85%). This would indicate a high proportion of the registered boats are used for day trips for short distance activities, such as fishing.

The proportion of boats over 4.1 metres is increasing over time this may have implications on future infrastructure requirements. For example, future marina developments may introduce large berth sizes to deal with the larger vessel sizes.

Figure 9 Changes in recreational boating registrations 2005-2009, by boat length (metres)



Source: Gippsland Boating Coastal Action Plan, 2012

Survey results

In order to understand the attitude and needs of the recreational boaters using the Gippsland Lakes, the Department of Environment and Primary Industries Victoria (DEPI) undertook a survey of fishers and other boat users in the Gippsland region during the period January-March 2014. The survey included a total of 391 responses from local users and visitors from around Victoria and beyond.

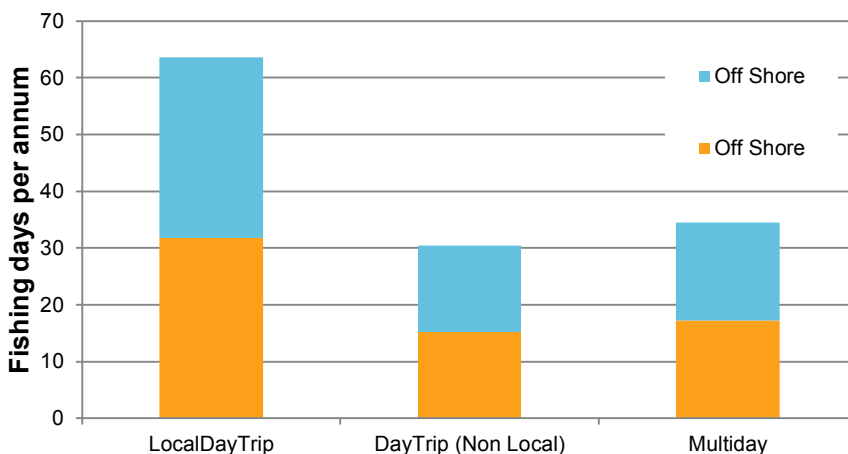
The aim of the survey was to explore the reason for choosing Gippsland as a boating destination, ascertain the primary activity of boaters along with building an expenditure profile.

Frequency of visitation

Amongst local respondents, the average number of boating days a year is approximately 16 days per annum from a total of 43 days spent fishing (either on shore or off shore). Amongst those respondents that listed themselves as boat users, the number of days spent boating in Gippsland rose to 28 boating days per annum (of 46 days fishing on average).

Figure 10 illustrates the frequency of visitation amongst the different respondent groups.

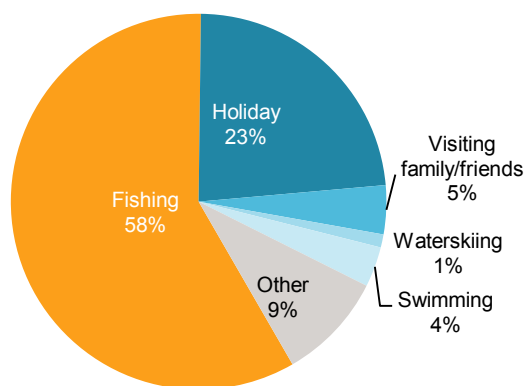
Figure 10 Frequency of visitation



Reason for visiting Gippsland

Most popular activity reason for visiting the Gippsland Lakes was fishing (58%) followed those holidaying in the Gippsland region (23%). A further breakdown of primary activities is displayed below in Figure 11.

Figure 11 Breakdown of activities



Where are visitors travelling from?

All survey participants identified with an Australian postcode, suggesting either all participants live in Australia or used the postcode of their accommodation. As a result, no overseas visitors have been identified.

As part of the survey, responses were collected for groups and individuals. Each survey response lists the number of people in the party and care was taken to make sure that expenditure information was broken down to reflect per person information.

The breakdown of respondents by location can be found in the table below. Local residents represented 36% of all respondents. The majority of visitors travelled from within the state, with 95% listing a Victorian postcode.

Table 8 Origin of survey respondent

Origin of visitor	Survey Respondents
Local Resident	137
Victoria other (excluding local residents)	237
New South Wales	11
Queensland	3
Western Australia	3
Total	391

Expenditure profile

A number of the questions were targeted boat user expenditure per trip and per day. Specifically, these questions targeted:

- Per trip expenditure
- The type of boat user expenditure : such as fuel, bait, tackle, accommodation
- The impact of price increases on future tourism in Gippsland.

Responses to these questions have been used to build an expenditure profile in the economic modelling in order to total boat user expenditure. The expenditure profile represents an average per person spend as calculated from the survey respondents on behalf of each group, or individual respondent.

Table 9 Average expenditure profile of boaters (2014 dollars)

Category / Expenditure type	Local user (fisher)	Day trip visitor	Overnight / Multi day visitor
Fuel	\$15	\$19	\$22
Accommodation	\$2	\$44	\$174
Retail	\$5	\$45	\$85
Restaurants	\$5	\$30	\$56
Bait	\$6	\$10	\$14
Other	\$5	\$23	\$159
Total	\$38	\$170	\$511

Source: DEPI Survey, AECOM

4.0 Infrastructure supply and demand

This section analyses and compares the current and future demand and supply of recreational boating infrastructure in the Gippsland Lakes region.

The assessment of infrastructure supply was based on desktop research and discussions with key stakeholders, such as operators and facility managers. The associated level of demand on these facilities for boating services was derived from consultation and our demand analysis, the gap between supply and usage was estimated.

Recreational boating facilities, for the purpose of this study, comprise formal structures such as boat ramps and wet or dry berths and swing moorings, with some discussion around support infrastructure such as car parking and trailer parking.

4.1 Current infrastructure supply

In 2012, the Gippsland Coastal Board (GBC) reviewed the current infrastructure and created a strategic framework for the future planning and development of recreational facilities in the Gippsland region. The resultant report *Gippsland Boating Coastal Action Plan 2012* highlights that there are currently 74 boat ramps, 66 publicly accessible jetties and 6 marinas in the Gippsland region.

The majority of facilities are located in the larger towns of Metung, Paynesville and Lakes Entrance (Figure 12) with additional facilities in the areas of Lake King, Lake Victoria.

Figure 12 Gippsland Lakes Current Infrastructure Supply

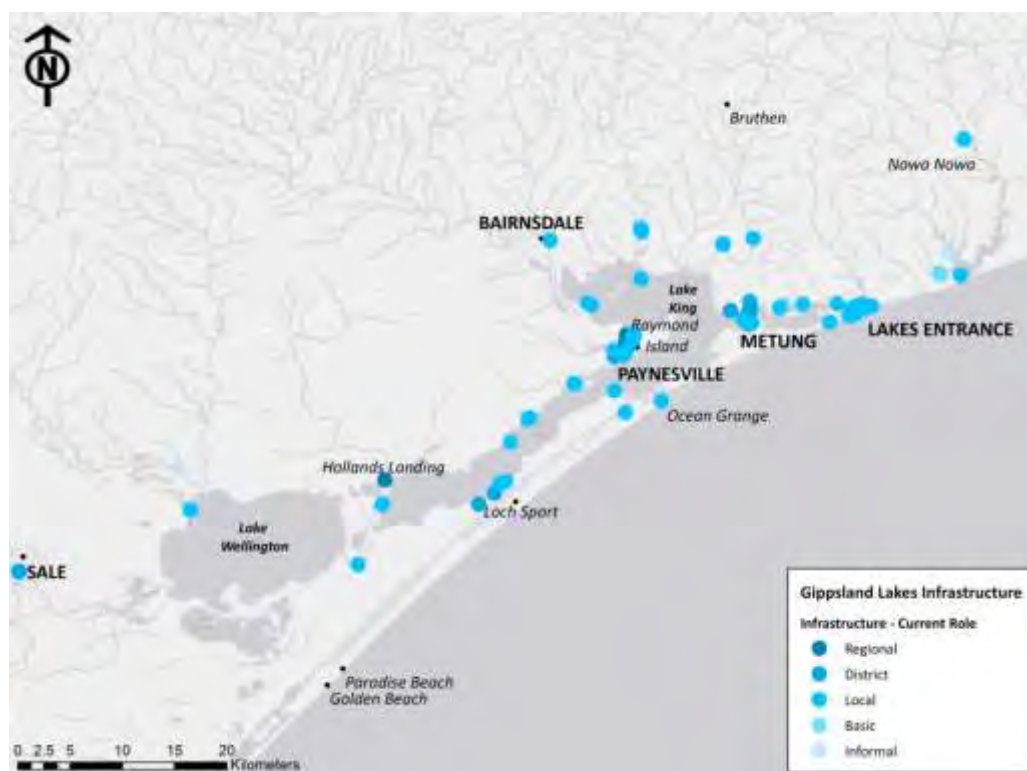


Table 10 displays the current levels of infrastructure in the Gippsland Lakes area specifically, including private berths.

Table 10 Existing facility supply in Gippsland Lakes and surrounding region

Facility Type	Number of existing facilities
Berths	848
Swing Moorings	196
Boat Ramps	26 ramps (with 43 lanes)
Itinerant berths	230 (based on 9 metre vessels with one metre spacing)
Private (licensed by DEPI)	586 jetties 1,345 berths

4.2 Current and future infrastructure demand

Demand for recreational boating has been increasing in Gippsland and Victoria more broadly in response to population growth, increased interest in the community and higher levels of boat ownership. With these trends in mind, this section identifies the current level of demand, and uses demographic and boat registration trends to develop a level of future demand.

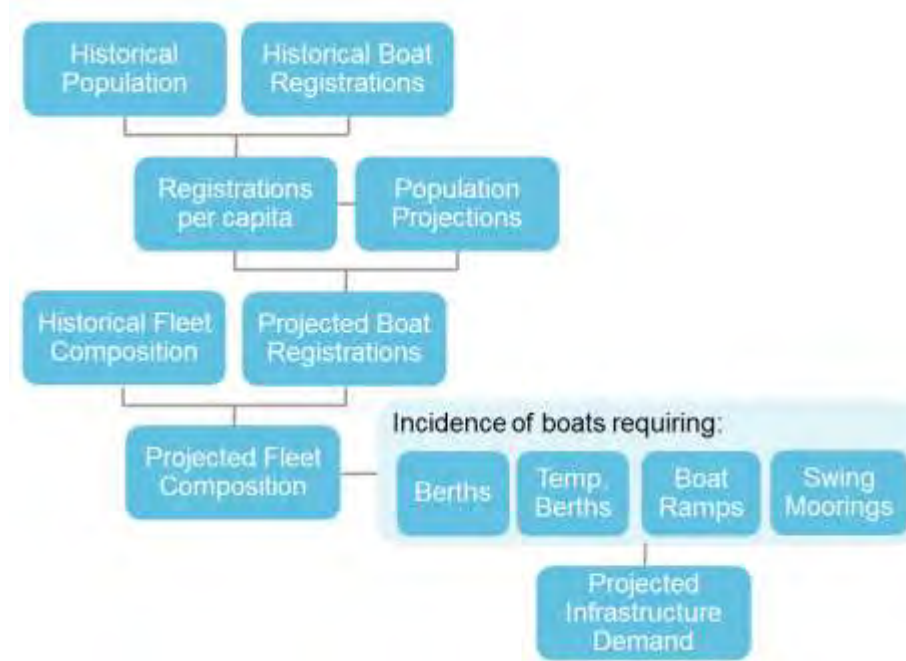
Methodology

For the purpose of this study, infrastructure has been simplified in to four categories:

- Boat ramps
- Berths
- Temporary, or destination jetties
- Swing Moorings.

Figure 13 provides an overview of the methodological approach taken for the demand study.

Figure 13 Demand Methodology



Historical and projected boat ownership

Using the Victorian boating registrations dataset¹⁴, a Gippsland catchment area was established based on postcodes that were located within the Local Government Authorities of Wellington and East Gippsland. Figure 7 illustrates the identified catchment.

AECOM used extrapolated ABS population data to calculate boating registrations per capita for the Gippsland Lakes catchment between 2008 and 2011¹⁵. It was found that Gippsland boat registrations have remained relatively stable at around one boat per seven persons in the Gippsland catchment over this time period.

In order to establish a future number of boat registrations within Gippsland, the relatively stable boat registrations per capita statistic was applied to Victorian in the Future (VIF) population projections¹⁶ for the Gippsland area. The VIF population projections (DTPLI) are available in five year sets through to 2031. These population projections were extrapolated to 2040 in our to provide a sufficient study period (26 years)

Table 11 details the results of the boat registration analysis. The current level of boating registrations in the Gippsland catchment is estimated to be 12,760 (2014). On the basis that Gippsland catchment boating registrations remain constant over the study period, the number of boat registrations is expected to reach 16,650 by 2040. This is equivalent to a growth rate of approximately 1% per annum

Table 11 Historical and future boat registrations

Year	2009	2014	2015	2020	2030	2040
Victoria						
Boat Registrations	161,569	174,706	176,689	185,832	201,740	217,024
Average Annual Growth Rate (%)		1.6%	1.1%	1.0%	0.8%	0.7%
Boat Registrations per capita	33.0	33.7	33.8	34.5	35.9	37.4
Gippsland						
Boat Registrations	11,866	12,760	12,864	13,499	14,981	16,650
Average Annual Growth Rate (%)		1.5%	0.8%	1.0%	1.0%	1.1%
Boat Registrations per capita	7.1	7.1	7.1	7.1	7.1	7.2

Source: TSV Victorian Boat Registrations, ABS catalogue 3218.0, VIF population projections, AECOM estimates

Historical and future fleet characteristics

In order to use the boat registrations to understand infrastructure needs, it is important to consider different boat types. The Transport Safety Victoria (TSV) boating registration data provide a broad breakdown of the size and composition of the Victorian boat fleet. Table 12 provides the breakdown of boats used. The split of boat types has been applied to the boat registration projections to produce fleet characteristics in to the future. It has been assumed that the proportion of boats fitting in to each boat and size category remains constant throughout the projection period. The fleet characteristics have been used to build assumptions on infrastructure requirements.

Table 12 Recreational boat registrations

Boat type/length	0-4.0m	4.1-5.5m	5.6-7.0m	7.1-8.5m	>8.6m	Total
Open	31.2%	28.9%	8.0%	0.4%	0.2%	68.7%
Half Cabin	0.2%	10.3%	4.3%	0.5%	0.1%	15.5%
Cabin Cruiser	0.0%	0.4%	1.0%	0.7%	1.1%	3.3%
Air Cushion	0.4%	0.1%	0.0%	0.0%	0.0%	0.5%

¹⁴ Transport Safety Victoria (provided by Boating Industry Association of Victoria)

¹⁵ Australian Bureau of Statistics catalogue 3218.0

¹⁶ http://www.data.vic.gov.au/raw_data/vif-2012-population-totals/210

Boat type/length	0-4.0m	4.1-5.5m	5.6-7.0m	7.1-8.5m	>8.6m	Total
Trailer Sailer	0.0%	0.3%	0.6%	0.3%	0.0%	1.3%
Yacht	0.0%	0.1%	0.1%	0.4%	0.9%	1.5%
Personal Water Craft	9.1%	0.1%	0.0%	0.0%	0.0%	9.3%
Canoe	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Total	41.0%	40.2%	14.1%	2.3%	2.3%	100.0%

Source: TSV Victorian Boat Registrations

Boat Ramp Demand

The following broad levels assumptions have been used in the boat lane demand analysis:

- Boat ramp demand is linked to local users only. Therefore Gippsland boat registration data alone has been used to build up the demand model.
- Small, trailerable boats provide the most significant driver of boat ramp demand. Therefore, in order to estimate the need for boat ramps in Gippsland, it is important to be able to estimate the proportion of boats in the catchment that fit in to this category. For the purpose of this study, boats under 8 metres in length are classed as trailerable vessels.
- Vessels of 8 metres and above are likely to transition to water based pens or moorings. It has been assumed that no boat over 8.6 metres in length is trailerable and requires berth storage.
- Each fleet boat type and size has been assigned a % incidence of being trailered as detailed in Table 13. Assignment has been based upon a literature review of several studies.¹⁷¹⁸
- The incidence of trailerable vessels requiring a boat ramp over the projection period remains constant throughout the projection period.
- The % incidence of trailerable vessels across the fleet amounts to 83.0% of vessels. This is in line with previous study findings which suggest that around 80% of vessels are trailerable.¹⁹

Assumptions about trailerable boats are outlined in the following table.

¹⁷ Cassowary Coast Maritime Facilities Demand Forecasting Study - http://www.missionbeachcassowaries.com/uploads/5/9/8/7/5987112/final_report.pdf

¹⁸ Recreational Boating Facilities Demand Forecasting Study - <http://www.msq.qld.gov.au/About-us/Msq-headlines/Headlines-demand-forecasting-study.aspx>

¹⁹ The Perth Recreational Boating Facilities Study 2008 http://www.transport.wa.gov.au/mediaFiles/marine/MAC_R_PerthRegion.pdf

Table 13 Proportion of boats by storage type - Trailerable

Boat type / length	0-4.0m	4.1-5.5m	5.6-7.0m	7.1-8.5m	>8.6m
Open	97.5%	85.0%	60.0%	40.0%	0.0%
Half Cabin	97.5%	85.0%	60.0%	40.0%	0.0%
Cabin Cruiser	97.5%	85.0%	60.0%	40.0%	0.0%
Air Cushion	97.5%	85.0%	60.0%	40.0%	0.0%
Trailer Sailer	95.0%	45.0%	35.0%	15.0%	0.0%
Yacht	95.0%	45.0%	35.0%	15.0%	0.0%
Personal Water Craft	97.5%	85.0%	60.0%	40.0%	0.0%
Canoe	0%	0%	0%	0%	0%

Source: AECOM

Demand scenarios

An important consideration in providing infrastructure in the Gippsland Lakes area is adequately meeting infrastructure demand in peak periods. Many of the facilities are built to provide sufficient infrastructure for average demand, however, during periods of high boating activity, a number of facilities are put under strain and can exceed capacity. Peak periods include summer, public holidays and major events.

Overstretched facilities can cause a number of concerns. Congestion or conflict on the water can cause safety concerns for boaters. Car park congestion can further exacerbate this frustration in the boating community, and reduce the number of boaters able to access popular facilities.

Capacity pressures can lead to 'unmet' demand or a reduced number of boaters seeking to use Gippsland Lakes during peak periods as they may seek alternative options which fewer infrastructure/facility capacity constraints.

If current trends continue, increasing boating registrations in the Gippsland catchment will lead to further pressures on the current level of infrastructure. In order to account for peaks in demand, the study has recognised three levels of demand:

- Off-Peak demand – This form of demand will likely be met by current infrastructure supply in almost all cases.
- Average demand – demonstrates the average between peak and off-peak periods.
- Peak demand – Is the demand expected during holiday and summer seasons.

We have used these levels of demand to build three scenarios for boat ramps, swing moorings and itinerant berth usage. These scenarios are given in the following table.

Table 14 Demand Scenarios

Demand Scenario / Infrastructure type	Boat Ramps ²⁰
Off Peak	8% of trailerable fleet requiring a boat ramp
Average	14% of trailerable fleet requiring a boat ramp
On Peak	20% of trailerable fleet requiring a boat ramp

Storage demand – Berths, swing moorings and temporary berths

The following broad levels assumptions have been used in the storage demand analysis:

²⁰ The demand scenarios for boat ramps are based on a Queensland study on recreational boating demand forecasting: <http://www.msq.qld.gov.au/About-us/Msq-headlines/Headlines-demand-forecasting-study.aspx>

- The analysis will focus on total demand. This is largely due to data constraints in modelling swing mooring and temporary berths
- Storage demand is based off the incidence of non-trailerable vessels which may require storage facilities, be it of a permanent or temporary nature
- The remaining vessels which have not been assigned to trailerable in Table 13 are considered to be non-trailerable, and therefore require storage. With this in mind, 17% of the local Gippsland fleet is estimated to require storage.
- The incidence of non-trailerable vessels requiring storage remains constant throughout the projection period
- Gippsland Ports data suggests that approximately 33% of berths are registered to non-local boaters. This statistic has been used to uplift the storage demand projections.

4.3 Demand and supply results

Berth and Swing mooring demand

Table 15 identifies the total berth demand between 2009 and 2040.

The number of existing facilities which have been included in the storage demand study (as estimated by Gippsland Ports) are as follows:

- 2,193 permanent berths (this includes 848 public berths and 1,345 private berths licensed through DEPI)
- 230 itinerant or temporary berths
- 200 swing moorings.

An indicative supply figure is therefore the total of these facilities. It should be noted that in the case of itinerant or temporary berths, multiple users could access the facility in a day as many of the berths have a 2 hour or 4 hour restriction, however some of these berths can be accessed by the same user for up to 48 hours and make up a small proportion of total facilities.

In all years, boat storage demand exceeds supply. Currently, there is a shortage of berthing facilities in the Gippsland Lakes area, with Gippsland Lakes Facility Managers Survey noting that the region has almost no wet berths vacant and an approximate 500 applicant waiting list.²¹ This is consistent with stakeholder feedback from facilities managers during the stakeholder consultation as process.

Table 15 Berth demand and supply

Year	2009	2012	2014	2020	2030	2040
Total Facilities Demand (including Swing Moorings and itinerant berths)	2,983	3,131	3,208	3,393	3,766	4,185
Total Facility Supply (fixed)	2,623	2,623	2,623	2,623	2,623	2,623
Gap	360	508	585	770	1,143	1,562

Boat ramp lane demand

The following table identifies the boat ramp lane demand for each of the three scenarios. The number of existing lanes in the Gippsland catchment has been identified by Gippsland ports as 26 ramps which include 43 lanes.

The projected demand for boat lanes has been calculated based on a rate of 40 boats per lane per day. This was estimated following discussion with a range of stakeholders, and seemed to be 'reasonable' based on the need for boats to use ramps twice per day (for launching and re-trailering).

The table below outlines estimated demand and supply for boat ramps at the Gippsland Lakes. It suggests that the number of boat ramps meets demand in off-peak and average demand but supply is exceeded by demand in the on-peak times in all cases. It does not take account of those ramps which may be sub-optimal (e.g. in poor

²¹ Facility Managers Survey 2007 Appendix A - <http://www.qcb.vic.gov.au/boatingstudy/Appendix%20A.pdf>

condition, or where the water is too shallow) and so may have limited use. This could mean that the 'real' supply of boat ramps is less than estimated.

Table 16 Boat ramp demand

Year	Existing Lanes	2009	2012	2015	2020	2030	2040
Off-Peak	43	20	21	21	22	25	28
Average		34	36	37	39	44	48
On-Peak		49	52	53	56	62	69

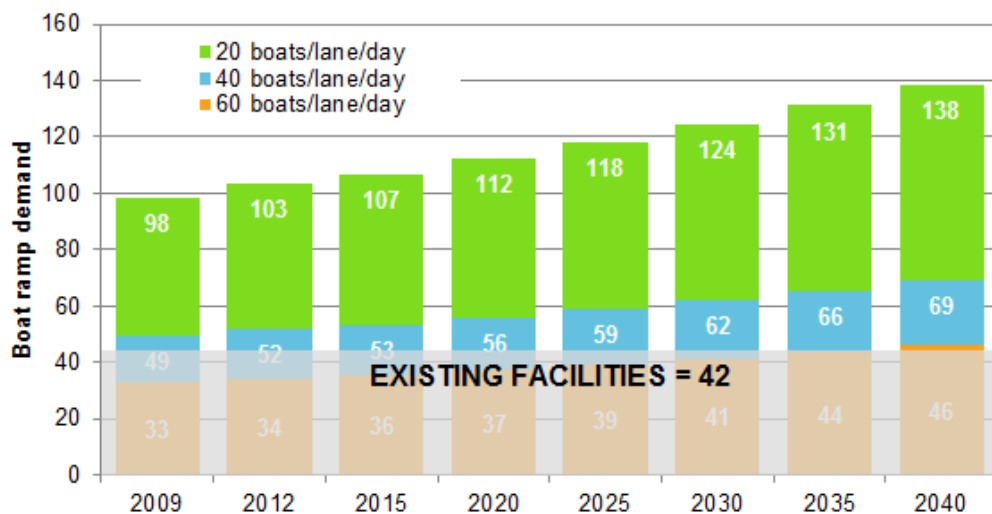
Note: Blue indicates exceeded demand exceeds supply

The figure below compares supply and demand using supply sensitivity analysis. It considers the gap between supply and demand where:

- Boat ramp lanes have the capacity for 20 boats launched per day
- Boat ramp lanes have the capacity for 60 boats launched per day.

Under the scenario where ramps can handle 60 boats per day (which we believe to be unlikely), existing facilities will be adequate to meet demand until 2035. Where boat ramps can only manage 20 boat launches per day, the gap between supply and demand grows to 96 ramps per day in peak periods.

Figure 14 Boat ramp supply vs demand – sensitivity analysis



Data Limitations & assumptions

There are several limitations on the supply and demand study which should be considered for future infrastructure planning. These are as follows:

- Limited demand data – There was only a limited amount of data at a detailed level for boating demand therefore this study was carried out for total Gippsland Lake demand. However, the demand for facilities is not likely to be uniform, several 'hot spots' or key destinations are likely to receive more demand than others. This will likely exacerbate the supply and demand gap in more desirable locations
- Fixed fleet proportions – the size and type of vessels in the Gippsland fleet has been held constant throughout the projection period. However, there are trends which suggest vessel trends are changing. Most notably there is a trend towards smaller more trailerable vessels. If this trend continues, the emphasis for future infrastructure should be around developing additional boat ramp facilities
- Fixed levels of infrastructure – the analysis assumes that infrastructure stays at current levels. However, if boating numbers increased at projected levels it is likely there would be some intervention to match supply and demand levels

Scenarios – the scenarios are high level and consideration should be given to particular seasonal peaks and events which may place a particular strain on facilities.

Table 17 highlights some of the major events which occur on the Gippsland Lakes each year.

Table 17 Seasonal peak periods and major events

Seasonal/Major Event	Event Type and Location
Mitchell River rowing regatta	
Carols by the Straits	(performers normally on barges on lake)
Paynesville Music Festival	
NYE fireworks	Paynesville, Metung, Lakes Entrance (often off barges on the lake)
Paynesville powerboat racing	
Seafarers Festival Ski and tinny muster	
Marlay Point to Paynesville overnight yacht race	Lake Wellington Yacht Club
Various	Gippsland Lakes Yacht Club
Various	Mitchell River, Tambo River rowing training – various private schools

4.4 Stakeholder consultation

A number of key stakeholders were consulted as part of this process. Key stakeholders included Peak bodies, Policy makers and recreational boat operators. Feedback from this process informed the supply and demand study and may also assist in informing on key priorities for future infrastructure needs.

The consultation process raised the following key issues:

Demand and Usage

A number of respondents commented on the seasonal peaks resulting in heavy infrastructure usage, this raised congestion and safety concerns, boat ramps were noted to be of particular concern. A respondent noted that several boat ramps were becoming unusable due to build ups of silt making launching impossible.

East Gippsland Shire Council suggested that marinas are utilised 100% of the time with a current waiting list of approximately 200 which is continuing to grow.

Transient berths were noted by a number of respondents as being over capacity during peak times. Even in the off peak, the transient berths in some areas were suggested to be as high as 50%, which could become an issue if boating registrations in the area continue to increase.

Key issues:

- Congestion
- Waiting lists
- Meeting demand in peak periods

Key Trends

The general consensus of respondents was that over the last five years there has been a noticeable increase in the number of boats on the Gippsland Lakes. Personal water craft, yachts and canoes were boat types which were noted as seeing a significant growth over this period. It was suggested there was also a trend towards more affluent boat users on the Gippsland Lakes, with growth in the number of expensive high end boats launching from Loch Sport and heading towards Lakes Entrance, Metung and Paynesville.

The mix of users was suggested to vary throughout the year. In off peak the mix was estimated to be around 75% local users and retirees to 25% boaters from out of the area. On peak, this split shifted towards 50/50, with half of

the boat users being visitors. Interstate visitors were estimated to account for approximately 10% of the total during peak season.

Key findings

- Mainly local users/
- Retirees and middle aged fishermen make are the key demographic users
- Small proportion of interstate boaters

Infrastructure Change & Trends and gaps

The various stakeholders had different insights in to addressing infrastructure gaps. For example, DEPI showed preference for extending existing jetties to address gaps, however this type of infrastructure investment would not be made without aligned demand already in place.

Others suggested that they were constrained by land costs, for example Loch Sport are at 100% storage capacity but extending would not be economically viable due to high costs.

Gippsland Ports has recently (2012-13) addressed an infrastructure gap by rebuilding the existing mooring jetty at Loch Sport, although this only provides itinerant berths only. Additionally, the council is looking to build a third boat ramp and additional car parking in the next 4-5 years.

Additionally, Gippsland Ports has a number of Infrastructure projects planned, awaiting funding, which include several redevelopment projects around Silvershot, Lakes Entrance, Nyerimilang Heritage Park, Metung Wharf, Lake King and Paynesville.

Key issues:

- High land costs restricting development in areas.
- Several planned Infrastructure projects awaiting funding.

Investment priorities

A number of respondents suggested that short term itinerant berthing should be a high priority. However, it was noted that the financial incentive to build this type of infrastructure is not there. Paynesville and Lakes Entrance were the two focus areas for transient berths.

It was acknowledged that there are facility gaps across the board. However, a number of respondents recommended that additional berth facilities were required, particularly with access to power and pump out facilities, car parking and on water fuelling. The focus areas for additional jetties were recommended as key townships such as Lakes Entrance, Metung and Paynesville.

Another recommendation was around the growth in the number of ancillary facilities on the Gippsland Lakes. Examples included walking tracks, access roads, shopping and public areas. Ancillary facilities would be a positive step in increasing the growth in boating tourists on the Gippsland Lakes.

Prioritising ongoing maintenance of assets was also of concern to a respondent. Particularly with a view to addressing sand and silt drift (eg. Marlay Point, Seagull Drive boat ramp at Loch Sport)

Key issues:

- Additional berths & jetties (particularly transient berths)
- Maintenance of assets
- Additional ancillary facilities - car parking, walking tracks, access roads, shopping and public areas

Proposed future infrastructure

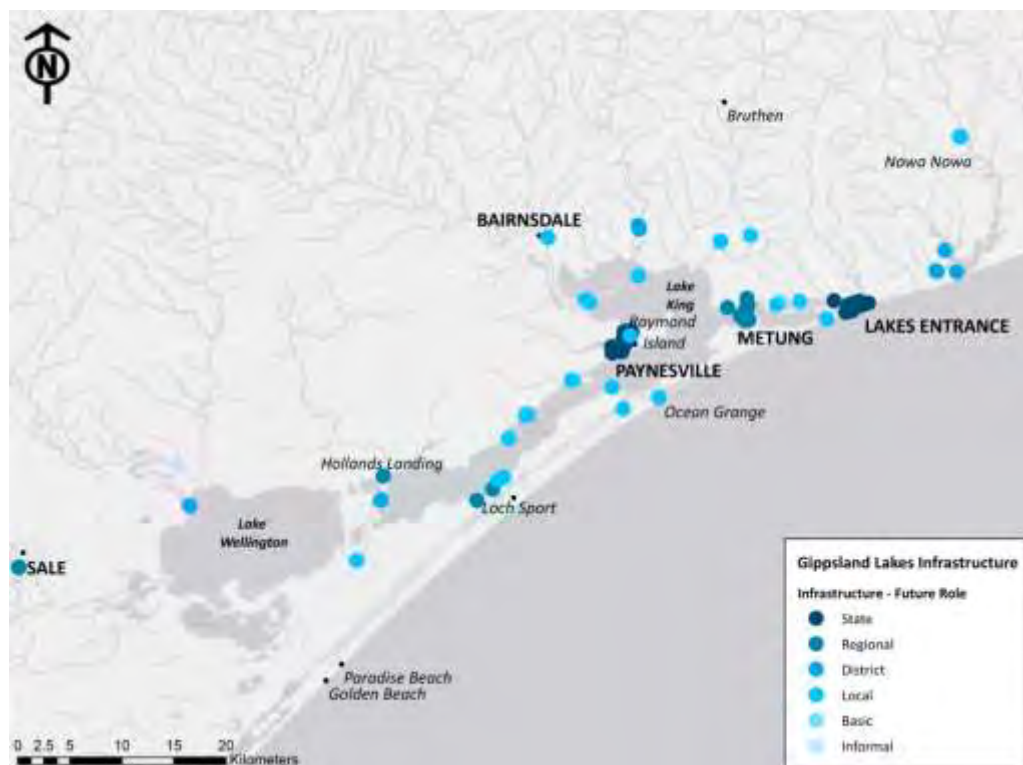
A number of facilities have plans for expansion within the Gippsland Lakes. Many of these works are planned to occur over the next few years, dependent on funding arrangements being in place. When online, these expansions will provide additional storage, ramp facilities and ancillary services to address some of the demand concerns raised in the previous section. Some of the proposed projects (from Gippsland Ports) include:²²

- Paynesville on water fuelling upgrade
- Cunninghame Arm footbridge landing (Lakes Entrance)
- Metung Wharf Transient Berthing Extension
- Nyerimilang Jetty and Access
- Mc Millan Straits Transient Jetties (Paynesville)
- Silvershot (Boole Poole) Destination and Access Landing Jetty Redevelopment (Metung)
- Lakes Entrance Boat Harbours (Staged) Redevelopment
- Paynesville Progress Jetty (Staged) Redevelopment.

Figure 15 demonstrates the planned future role of existing infrastructure on the Gippsland Lakes, the map is based data extracted from the Gippsland Boating Coastal Action Plan 2013. The townships of Paynesville and Lakes Entrance are perceived as holding a level of State significance in the future, with areas such as Metung and Holland's landing fulfilling a regional role. To achieve this plan, the Gippsland Coastal Board recognises that a number of key infrastructure challenges must be addressed such as:

- Development of a co-ordinated network of facilities
- Reducing environmental impacts of recreational boating
- Reducing conflict between recreational boaters and other facility users during periods of intense usage
- Contributing to the long term sustainability of facilities.

Figure 15 Gippsland Lakes Future Roles of Current Infrastructure



²² Gippsland Lakes (Recreational Boating) Infrastructure Planning, December 2013

5.0 Economic contribution of boating

In this section, we estimate the economic impact of the recreational boating in the Gippsland Lakes.

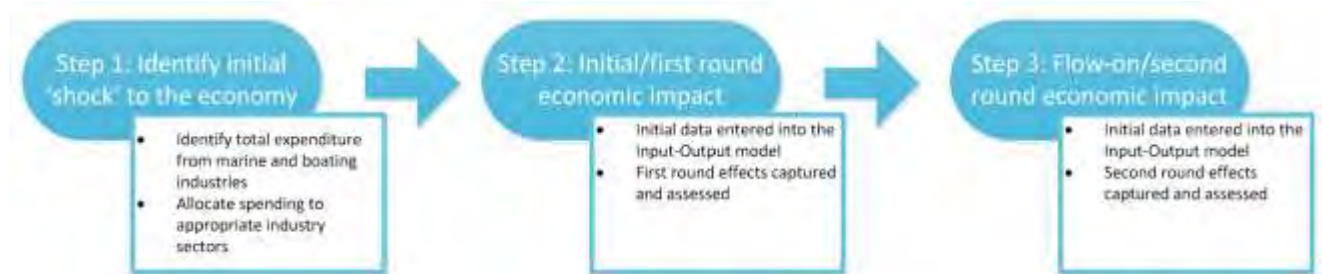
5.1 Economic impact analysis

The economic analysis provides a high level estimate of the economic impact of recreational boating and associated industries at Gippsland Lakes.

The economic analysis has been undertaken using Input-Output (I-O) tables, provided by the Australian Bureau of Statistics (ABS).

The key steps in the economic impact modelling process are outlined in the following figure.

Figure 16 Economic impact modelling process



Input-Output multipliers

Input-Output analysis helps us to understand the indirect flow of impacts on economic activity through the economy. In this instance, we would estimate the impacts of sales accruing to boating businesses to the regional economy.

The Input-Output model uses two types of multipliers:

1. Value added multipliers measure the net increase in economic activity resulting directly and indirectly from a change in final demand, with value added being the difference between gross value of production and the costs of inputs purchased in the production process (in other words, the contribution that is made by the sum of wages and salaries, operating surplus, and government taxes and charges, to the economy). This is derived using the Income table in the ABS Input-Output multipliers.
2. Employment multipliers measure the overall increase in employment as a result of an increase in demand.

For the economic model, the key input is the value of business sales or boat user expenditure. Using the multiplier will tell use:

3. Initial impact – this describes the first round net impacts of the increased business sales in the economy. Specifically, these are profits, wages, government taxes and charges associated with the boating companies that actually realised the sales.
4. Flow-on impact – these are the surpluses (wages, profits etc.) resulting from the indirect beneficiaries of the sales up and down the supply chain.

The employment multipliers represent the average number of jobs created per million dollars of expenditure. To use the employment multipliers, we use as an input the estimated business sales. There are two employment outcomes estimated:

5. Initial impact – employment effects associated with the first round effects of increased sales.
6. Flow-on impact – Flow-on employment impact – employment effects associated with flow-on impacts up and down the supply chain.

5.2 Data inputs

The data used to estimate economic impact are:

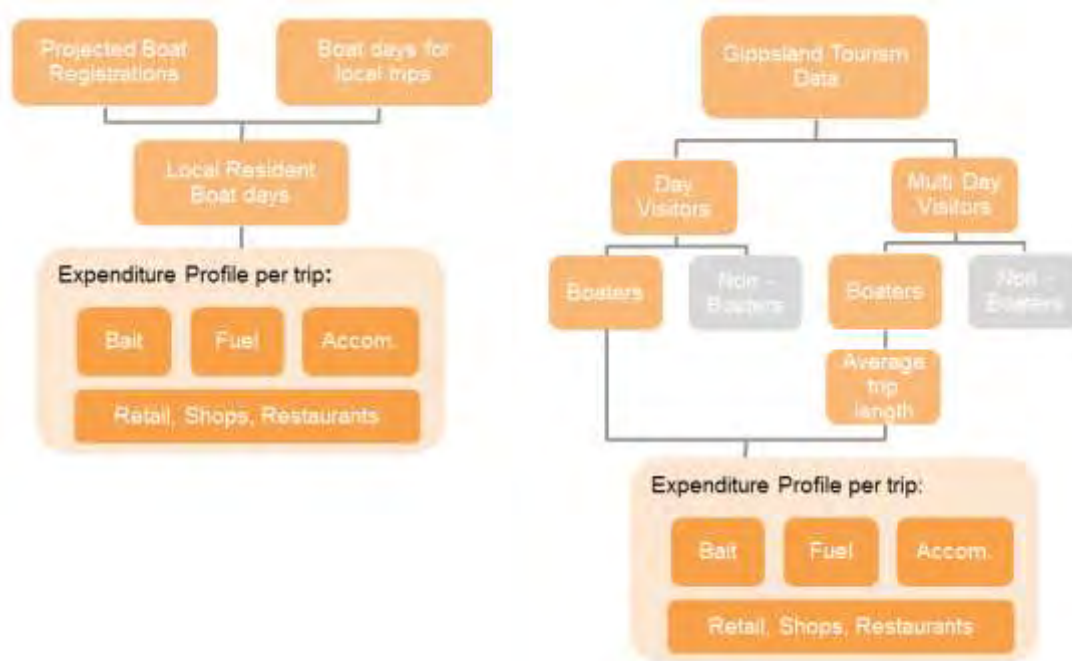
- Sales accrued from local boat users using the Gippsland Lakes
- Sales accrued by intrastate, interstate and international visitors on day trips using the Gippsland Lakes for boating activities
- Sales accrued by intrastate, interstate and international visitors on overnight/multiday trips using the Gippsland Lakes for boating activities.

The starting point for the estimating the economic impact calculation was to estimate the expenditure and visitation patterns to the Gippsland Lakes. Figure 17 demonstrates our approach.

There were three key sources of data used for this analysis:

- Boat registration data:²³ The Victorian data by postcode was used to extract a Gippsland catchment
- Tourism data:²⁴ to estimate the number of people visiting the Gippsland lakes for the purpose of boating.
- DEPI survey data: in order to build an expenditure profile. The survey provided a rich source of data, which included questions on Local users, number of days in the trip and boat user information. From these questions an expenditure profile was estimated.

Figure 17 Expenditure profile methodology



²³ Sourced from Transport Safety Victoria, boating registration data

²⁴ Sourced from Tourism Victoria, Shire of Wellington and Shire of East Gippsland

Table 18 Data assumptions and sources

Trip Category	Assumptions	Comments
Local User (based on boat registration data)	<ul style="list-style-type: none"> - Local users are defined as boat registrations with postcodes located within Wellington and East Gippsland Local Government areas - Based on the DEPI survey results for local boat users, an average of 28 days per annum were spent in the Gippsland area - DEPI survey averages for trip expenditure was estimated to be \$38 per trip. 	<p>Local users have been derived from TSV postcode data. The data equates to 7% of boaters being located in the Gippsland region.</p> <p>Within the DEPI survey, Local users are defined as those which selected that they were local residents and additionally used boats on the Gippsland Lakes.</p> <p>A breakdown of the expenditure profile for local users can be found in Table 9.</p>
Day trip visitor (Tourism Victoria data)	<ul style="list-style-type: none"> - Gippsland region visitor numbers have been sourced from the Tourism Victoria website²⁵ - East Gippsland Tourism Snapshot 2012 data²⁶ indicates that 1% of visitors spend time fishing and 7% of multiday visitors. These figures have been used as a proxy for boat users - A National Boating use study²⁷ (National Marine Safety Committee, 2010) estimated that 54% of boating trips are related to fishing. This has been used to estimate the proportion of non-fishing boat trips. 	<p>The data is split in to domestic day trip, multiday and overseas. For the purpose of this study overseas has been included in the multi day visitor category.</p>
Overnight / Multi day visitor (Tourism Victoria data)		<p>The NMSC study suggested that fishing was the primary activity on 54% of trips with cruising the primary activity on 24% of trips.</p> <p>A breakdown of the expenditure profile for Day trip visitors and Overnight visitors can be found in Table 9.</p>

5.3 Results

Overall, the total net impact of the recreational boating industry in Gippsland is estimated at \$163.0 million. This includes:

- First round or direct economic impact of \$51.4 million and a flow on or indirect economic impact of \$111.6 million.
- The majority of the economic impact is from tourism, with Day Trips and Overnight/Multi day visitors accounting for 68.4% of total impact.

The results of the economic modelling are outlined below.

Table 19 Estimated value add impact, Gippsland Lakes boat users \$2014

Component	Initial Impact (\$m)	Flow-on impact (\$m)	Total impact (\$m)
Local User	\$13.0	\$28.5	\$41.5
Day trip visitor	\$3.5	\$7.6	\$11.1
Overnight / Multi day visitor	\$34.8	\$75.6	\$110.4
Total	\$51.4	\$111.6	\$163.0

²⁵ Gippsland market profile, year ending December 2012

²⁶ http://www.eastgippsland.vic.gov.au/Business_and_Tourism/Lets_Do_Business/Economic_and_Industry_Profile

²⁷ <http://www.sail-world.com/index.cfm?nid=73735>

Employment impacts both direct and indirect were also estimated using Input-Output multipliers. These were estimated for all visitation types. The results show that estimated direct and flow-on employment gain resulting from recreational boating totalled 2,814 Full time Equivalent (FTE) jobs.²⁸ The results are outlined in Table 20.

Table 20 Estimated employment impact, Gippsland Lake boat users

Component	Initial Impact	Flow-on impact	Total impact
Local User	182	418	599
Day trip visitor	90	112	202
Overnight / Multi day visitor	892	1,120	2,012
Total	1,164	1,649	2,814

²⁸ We have not been able to estimate employment impacts for Wellington Shire or East Gippsland Shire, due to a lack of data at the LGA level.

6.0 Key findings and messages

6.1 Key findings in the study

Overall, the recreational boating sector in Gippsland provides significant economic and employment benefits to Victoria.

The estimated annual economic impact of recreational boating totalled \$163.0 million, comprising \$51.4 million in first round impacts and \$111.6 million in flow-on impacts. Boating tourism accounted for the largest proportion of these impacts, with an estimated \$121.5 million total impacts (Day trips \$11.1 million and Multi day \$110.4 million) being generated by visitors to the area.

The expenditure of recreational boaters related to activities such as accommodation, bait and fishing supplies, food and beverage and retail. The expenditure profile varied significantly by the type of boat user. Local users were estimated to spend \$38 per trip whereas a multi-day visitor may spend as much as \$511 per trip in the local community.

The economic impact of the expenditure represents an estimated employment impact of 2,814 jobs (Full Time Equivalent), comprising estimated first round employment impacts of 1,164 jobs and flow-on employment impacts of 1,649.

The study also found that demand for recreational boating facilities currently exceeds supply during peak periods but also at other times. In particular, the study found that:

- Demand for berths and boat storage facilities (including swing moorings and itinerant berths) is significantly greater than supply. Modelling indicated a shortfall of around 500 as at 2012, an estimate that was supported by stakeholder feedback
- Modelling of boat ramp lane demand indicated a shortfall during peak times (defined as the summer season, public and school holidays and major events). This shortfall is expected to worsen significantly without investment in additional boat ramp facilities.

The gap between supply and demand is expected to worsen in coming years. This will largely be driven by the growth of local boating demand as well as tourism. While the stakeholder consultation process found that a range of planning for additional facilities had been undertaken, these are largely unfunded.

There are a number of key challenges to address in order to plan for future demand, whilst continuing to promote the Gippsland Lakes as a key recreational boating destination in Victoria. The level of recreational boating activity, particularly in peak periods such as summer and public holiday long weekends is constrained by the facilities currently available. In these peak times, traffic and congestion detract from the experience of tourists and may lead to reduced return rates if not addressed. It also impacts on the local users that use the facilities throughout the year and may reduce enjoyment and lead to facilities users seeking different recreation choices.

In order to preserve and grow boating tourism and provide sufficient boating facilities throughout the year for local residents, infrastructure planning and design of facilities should respond to the increased demand in peak periods.

Appendix A

Stakeholders consulted

Appendix A Stakeholders consulted

Table 21 Stakeholder Engagement List

Business Name	Area of Operation	Contact
Boating Industry Association of Victoria	Peak Body	Ben Scullin (Manager - Strategic Programs)
Business Tourism East Gippsland (formerly EGRBTA)	Peak Body	Tamara Cook (Paynesville BTA Rep)
Gippsland Ports	Infrastructure Manager	Greg Hatt (Operations Manager)
East Gippsland Shire Council	Infrastructure Manager	Graham Reeve (Marine Supervisor)
DEPI (Fisheries Dept)	Infrastructure Manager	Kevin Giblin
Gippsland Lakes Ministerial Advisory Committee	Policy Maker	Martin Richardson (Executive Officer)
Transport Safety Victoria (formerly MSV)	Policy Maker	Gareth Johnson
Bulls Cruisers	Commercial Boating	Peter Blaney (Owner)
Peels Cruises	Commercial boating	Barry Peel (Owner)
Lakes Entrance Offshore Charters	Commercial boating	Sarn Eckhardt
Riviera Nautic	Commercial Boating	Cameron Johns (Owner)
Gippsland Lakes Yacht Club	Recreational Boating	Jacqui Crawford (Commodore)
Loch Sport Boat Club	Recreational Boating	Trevor Jones (Commodore)
Nicholson Angling Club	Recreational Boating	Michael Jones
Rays Marine Centre	Marine Industry	Trevor Bott (Owner)
Tambo Marine	Marine Industry	Dean Bolding (Owner)
Webster Marine Boat Sales	Marine Industry	Tony Webster (Owner)
Riviera Properties	Land Use	Tim Weight (MD)
King and Heath	Land Use	Chris Martin (MD)