Recreational Boating Facilities Demand Forecasting Study

South East Queensland South Region

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ECONOMIC ASSOCIATES

September 2011

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Glossary of terms and abbreviations

Term/Abbreviation	Definition
Access (water)	Issues relating to water access e.g. difficulty launching and retrieving a vessel.
BH	Boat harbour
BICM Program	Boating Infrastructure Capital and Maintenance Program
Boat lane width	TMR's design standard for boating infrastructure has recently been amended to increase lane width from 3.5 metres to 4 metres.
CTU	Car trailer unit
CMP	Coastal Management Plan
Delivery Agencies	Key agencies within Queensland responsible for providing infrastructure (both land and water based) for recreational boating including councils, facility owners and managers (SEQwater and Sunwater), port authorities and Transport and Main Roads.
DERM	Department of Environment and Resource Management
DIP	Department of Infrastructure and Planning (now DLGP)
DLGP	Department of Local Government and Planning
DLGPS	Department of Local Government, Planning and Sport
DLGPSR	Department of Local Government, Planning, Sport and Recreation
Dry Storage	Storage of a boat on land
DTMR	Department of Transport and Main Roads (now TMR)
EPA	Environmental Protection Agency (now DERM)
ERP	Estimated resident population
GIS	Geographic Information Systems
INDEGO	Infrastructure Development Geospatial Options
Land based facilities	Facilities provided on land at recreational boating facility sites e.g. car parking, toilets, lighting, washdown facilities, rigging areas, fish cleaning tables, bins, etc.
LGA	Local Government Area
MCA	Multi-Criteria Analysis

Term/Abbreviation	Definition
MSQ	Maritime Safety Queensland
OESR	Office of Economical and Statistical Research
PIFU	Planning Information and Forecasting Unit
RBC	Recreational boating catchment
Recreational boating	Boating undertaken for recreational purposes not involving commercial gain
SEQ	South East Queensland
SEQ Regional Plan	South East Queensland Regional Plan
SEQORS	South East Queensland Outdoor Recreation Strategy
TMR	Transport and Main Roads
Trailerable boat	A boat that can be transported by a trailer
VMR	Volunteer Marine Rescue
Wet Berthing	Storage of a boat in the water at a marina

Executive summary

Demand for recreational boating has been increasing throughout Queensland in response to population growth, higher levels of participation by the community and increasing boat ownership. This has exacerbated the pressure on recreational boating facilities particularly in the more popular and populous locations.

This study, commissioned by the Boating Infrastructure and Waterways Management Branch of Transport and Main Roads (TMR), seeks to establish the demand for recreational boating for the state of Queensland. This study[1] has been undertaken for each of the five TMR regions to assist in the identification of the areas of greatest need for additional or upgraded recreational boating facilities within a three to ten year timeframe.

Details of the Study purpose, scope, limitations and assumptions are provided in section 1 of this report.

Regional overview

This report focuses on the South East Queensland – South Region (SEQ South Region) extending from Logan and Cleveland in the north to the New South Wales border in the south and incorporates Redland, Logan, Ipswich and Gold Coast City Councils and Lockyer Valley and Scenic Rim Regional Councils.

The key characteristics and influences on recreational boating activity in the SEQ South Region can be summarised as follows:

- The SEQ South Region is experiencing on-going population growth, with highest rates of growth in Gold Coast City and Ipswich City.
- There are significant environmental management and constraints on the location of boating facilities and associated infrastructure under the SEQ Regional Plan and State and Regional Coastal Management Plans.
- The Gold Coast's waterways are considered an important part of the community as they contribute significantly to the tourism and boat building industry in the area.
- There are several new major growth areas designated within the SEQ South Region that will need to be considered in determining catchment population for existing and future recreational boating requirements.

Recreational boating catchments

For the purposes of this study, sixteen recreational boating catchments (RBCs) have been defined in conjunction with TMR, using local government area (LGA) boundaries

[1] This document will be used by delivery agencies as one tool in a broader assessment process to choose and prioritise sites for development. This document will also be used by delivery agencies (in partnership with council and port authorities) as a guide for the allocation of funding. Submissions for funding will be considered outside of the recommendations of this study and will be assessed on a case by case basis.

and taking into consideration the five TMR regions in Queensland[2]. The RBCs within Queensland are shown on Figure 6.

Catchments for recreational boating infrastructure are typically influenced by:

- road transport infrastructure to the facility;
- natural and man-made barriers;
- the location and scale of existing facilities in the area; and
- psychological barriers, such as driving time and perceptions of distance.

The SEQ South Region has been identified as a single RBC.

Consultation outcomes

Stakeholder consultation was an integral part of the project and was delivered across Queensland over a six month period, from March to August 2010. Feedback from this consultation process informed the inventory, needs assessment, and prioritisation of sites, providing a qualitative and structured assessment from the perspective of key and other stakeholders, and the community.

Consultation activities

Consultation Method	Participation
Surveys	The community of Queensland was invited to provide feedback on recreational boating facilities by participating in an online survey, via the Queensland Government's 'Get Involved' website. The survey was structured as a variety of open and multiple answer questions. Of the 664 responses received from around the State, 106 surveys were from residents of the SEQ South Region representing 16 percent of the total sample.
Workshops	Stakeholder workshops were conducted as round table discussions to provide attendees with the opportunity to 'have their say' on current use patterns, limitations and potential opportunities associated with recreational boating facilities at a local level. Stakeholder workshops were held in seven locations across the SEQ South Region and approximately 35 percent of invitees attended the workshops.
Phone and email	A 1800 number and email address were operational throughout the consultation process.
Brisbane boat show	The community survey was available as part of the Brisbane Boat Show held on the 26-29 August 2010. This process was supported by MSQ representatives.

[2] It is recognised that boat owners may travel outside their recreational boating catchment to access facilities. However, discussions with TMR determined that the recreational boating catchments defined above were the most appropriate.

The biggest issues in the SEQ South Region relate to the structural condition of a boat ramp, a lack of parking and poor water access. Issues identified by stakeholders include:

- Parking and congestion is a major problem at boat ramps across the region, particularly on the Gold Coast.
- Public boat ramps have not been successfully integrated with marina developments.
- High demand exists for multi-use boat ramps and platforms, particularly for motor boats, sailing boats, canoes and jet skis. Tensions can escalate between users when the boat ramp is blocked.
- There is an increasing demand for boat ramps, floating walkways and pontoons to be compliant with disability design guidelines.
- Shared use of boat ramps by the general public and commercial vessels causing operational and safety problems at boat ramps.
- Congestion at boat ramps during peak periods and limited queuing areas for people waiting to launch.

The following table provides a summary of the most liked, disliked and used boat ramps in the SEQ South Region as identified by survey respondents.

Survey respondents feedback – existing recreational boating facilities

Catchment where respondents reside	Most liked boat ramp	Most disliked boat ramp	Most used boat ramp
SEQ South	Jacobs Well boat ramp (20m south of jetty) (Gold Coast City Council)	William Street boat ramp (Redland City Council)	William Street boat ramp (Redland City Council)
	William Street boat ramp (Redland City Council)	Victoria Point boat ramp, northern Colburn Avenue (Redland City Council)	Jacobs Well boat ramp (20m south of jetty) (Gold Coast City Council)
	Victoria Point boat ramp, northern Colburn Avenue (Redland City Council)	Cabbage Tree Point boat ramp (Gold Coast City Council)	Cabbage Tree Point boat ramp (Gold Coast City Council)

Demand assessment

The recreational boating facilities demand assessment has been used as a tool in this project to determine current and future demand and the areas within the state where

the demand for recreational boating facilities is the greatest. This process guides, along with the consultation outcomes and site assessment, the identification of priorities for investment in recreational boating infrastructure. The recreational boating demand assessment is contained in section 5 and Appendix A of this report.

Trailerable boat fleet

Trailerable boat ownership is the most significant demand driver for boat ramps. The composition of a region's boating fleet determines the quantity of boat ramps demanded. Therefore, to estimate demand for boat ramp lanes within each catchment in Queensland, it was necessary to estimate the size and composition of the boat fleet within each catchment area. Boat registrations represent the best source of data for estimating the size of the boat fleet.

The projected fleet size in each catchment has been estimated by applying the projected boat ownership ratio to the projected increase in population for the catchment area and then adding the projected growth in boat registrations to 2009 boat registrations.

Along with SEQ North, the SEQ South RBC is anticipated to have the highest number of boat registrations in Queensland. The rate of growth in boat registrations is projected to be highest in the SEQ South, Gladstone, Emerald and Mackay RBCs.

As detailed in the following table, the boat registrations in the SEQ South RBC are projected to increase by 35,862 by 2031.

Projected boat registrations – base case scenario 2010-2031

RBC	2010	2011	2016	2021	2026	2031
Total boats						
SEQ South	56,282	57,438	65,595	74,205	83,085	92,144

To estimate the projected size of the trailerable boat fleet it has been assumed that the incidence of boats requiring a boat ramp remains constant throughout the projection period. The following table highlights that for the base case scenario, between 2010 and 2031, the increase in boats requiring a boat ramp is projected to be 32,148 in the SEQ South RBC.

Projected boats requiring a boat ramp – base case scenario 2010-2031

RBC	2010	2011	2016	2021	2026	2031	Change
SEQ South	50,482	51,519	58,831	66,549	74,510	82,631	32,148

Source: Economic Associates estimates

In order to determine the demand for recreational boating facilities, estimates have been made based on literature for off-peak demand and peak demand on a single weekend throughout the year. TMR recognises three levels of demand:

- Off-peak demand – the department expects off-peak demand to be met in almost all circumstances.
- Average demand – is taken to be demand for a facility on weekends (and for certain regional locations other busy periods).
- Peak demand – is demand for a facility at peak holiday periods and for special events.

TMR's program of works is aimed at satisfying average demand, where funds from recreational vessel registration fees allow.

Based on the above findings, and the TMR levels of demand, three scenarios estimating boat ramp lane demand have been provided:

- Off-peak demand – 8% of boats demanding a boat lane on any given weekend.
- Average demand – 14% of boats demanding a boat lane on any given weekend.
- Peak demand – 20% of boats demanding a boat lane on any given weekend.

Average demand scenario has been adopted for the purposes of this study as it will provide the most representative demand for the SEQ South Region.

In estimating off-peak demand on a weekend in Table 19 (section 5), it was noted that on 35 of the 52 weekends, usage was estimated at 2% of the trailerable boat fleet. However, this figure is likely to be higher on certain weekends, for example when weather is particularly favourable, on other public holidays (e.g. show holiday), long weekends resulting from a pupil free day at their child's school, or consecutive 'leave' days.

The following table identifies the boat ramp lane demand for the average demand scenario between 2010 and 2031. The number of existing lanes in the SEQ South RBC (both TMR and non–TMR) has been identified and the projected demand for boat ramp lanes to 2031 has been calculated based on a rate of 40 boats/lane/day for the base case scenario.

Several other alternative scenarios have been assessed with this detailed in section 5.7.3 and Appendix A of this report.

Boat lane demand – base case scenario 2010-2031

RBC	Existing lanes[3]	2010	2011	2016	2021	2026	2031
Average demand scenario							
SEQ South	121	177	180	206	233	261	289

Note: The numbers identified in red indicate that the current number of boat ramp lanes does not meet demand

[3] excludes private boat launching facilities including those owned and operated by clubs

To refine the demand calculations outlined in the table above, consideration has also been given to whether a boat ramp is full or part time accessible, and if there is a pontoon or floating walkway to assist in improving the efficiency of the boat ramp.

For the purposes of this assessment a part tide boat ramp is considered to be equivalent to 70% of the capacity of a full tide boat ramp, while the addition of a pontoon is considered to increase the capacity of the facility by 50% of a boat ramp lane. Based on this information, the projected boat land demand incorporating tide accessibility and pontoons and floating walkways is outlined in the following table.

Demand incorporating tide accessibility and pontoons/floating walkways

RBC	Total lanes	2010	2011	2016	2021	2026	2031
Average demand scenario							
SEQ South	122.5	177	180	206	233	261	289

Note: The numbers identified in red indicate that the current number of boat ramp lanes does not meet demand

RBC demand

The findings of the demand assessment for the SEQ South Region have been used as the basis of identification of those RBCs across Queensland having the highest daily demand. The categorisation criteria for determining the low, medium and high demand RBCs are:

- Low demand RBC (green) – demand of 5 lanes or less.
- Medium demand RBC (yellow) – demand of between 5 and 15 lanes.
- High demand RBC (orange) – demand of 15 lanes or greater.

The boat ramp lane demand numbers are based on the existing lanes with the underlying assumption that no new lanes will be added to these catchments within the planning timeframe. If new or expanded facilities are provided the total lane demand numbers will reduce accordingly.

The SEQ South RBC currently has demand for boat ramp lanes with this demand projected to continue within the planning timeframe of this project. The lane demand for the SEQ South RBC is detailed in the following table.

RBC demand categorisation – 40 boats/lane/day

RBC	Existing lanes	2010	Lane demand*	2016	Lane demand*	2021	Lane demand*
SEQ South	122.5	177	54	206	83	233	111

* Rounded down to the nearest whole number.

Identification of priorities

To assist in the process of identification of priorities for the provision of recreational boating facilities in the SEQ South Region, the site specific information collected through the consultation process was collated. The feedback included that obtained from the community survey, thorough workshops, and information provided by key and other stakeholders.

This information, along with the other information available for each of the facilities, was collated and potential new sites and priority sites were identified. These sites then provided the targeted locations for the spatial analysis component of the study. GIS analysis was undertaken to determine the suitability of potential new sites as well as the potential for upgrades at existing sites.

Suitable sites are prioritised into:

- Priority 1 sites;
- Priority 2 sites;
- Priority 3 sites; and
- Priority 4 sites.

The recreational boating priorities and recommendations for the SEQ South Region are summarised in the following table.

SEQ South Region priorities

Priority	Recommendations
Priority 1	Boat ramp Pacific Highway Oxenford - upgrade existing facility
	Boat ramp Marine Stadium – new facility
	Boat ramp Steiglitz Marine Precinct – new facility
	Boat ramp William Street - upgrade existing facility
	Boat ramp Jabiru Island - upgrade existing facility
Priority 2	Boat ramp Coomera Beattie Road – new facility
	Boat ramp Alberton - upgrade existing facility
	Boat ramp Lamb Island - upgrade existing facility
	Boat ramp Cabbage Tree Point - upgrade existing facility
	Boat ramp Thorneside Helen Street and Queens Esplanade - upgrade existing facility
	Boat ramp Calypso Bay – new facility
Priority 3	Boat ramp Anzac Park Broadwater – upgrade existing facility

Priority	Recommendations
	Boat ramp Ephraim Island Bridge – new facility
	Boat ramp The Spit Muriel Henchman Drive – upgrade existing facility
	Boat ramp Logan River Henderson Reserve – upgrade of existing facility
	Boat ramp Coomera River Causeway – new facility
Priority 4	Boat ramp Behm Creek – new facility
	Boat ramp Boat Ramp Cecil Zipf Park – new facility
	Boat ramp Coleman Road Reserve – upgrade of existing facility

Demand following facility construction

The priority recommendations will assist in catering for the projected lane demand for the SEQ South Region. The construction of additional lanes and/or pontoons/floating walkways will increase the capacity of boat ramps and therefore contribute to a reduction in the demand for lanes across the region. The table below identifies the projected lane demand following the construction of the priorities as follows:

- Existing lanes - the number of lanes available at that time e.g. existing lanes at 2016 includes the lanes constructed as part of the 2010-2014 BICM Program and the recommended Priority 1 sites.
- Lane requirements - the number of lanes required as forecasted in the demand analysis process.
- Lane demand – the difference between the number of existing lanes and lane requirements, being either a surplus or shortfall of boat ramp lanes.

Boat lane demand following construction of priorities

RBC	Existing lanes at 2010	Lane requirements 2010 (forecast)	Lane demand 2010*	Existing lanes at 2016	Lane requirements 2016 (forecast)	Lane demand 2016*	Existing lanes at 2021	Lane requirements 2021 (forecast)	Lane demand 2021*
SEQ South	126	177	51	146	206	60	160	233	73

* Rounded down to the nearest whole number.

1. Introduction

Demand for recreational boating has been increasing throughout Queensland in response to population growth, higher levels of participation by the community and increasing boat ownership. This has exacerbated the pressure on recreational boating facilities particularly in the more popular and populous locations.

GHD and Economic Associates were commissioned by Transport and Main Roads (TMR) to undertake a recreational boating demand forecasting project for the state of Queensland. This study has been undertaken for each of the five TMR regions to assist in the identification of the areas of greatest need for additional or upgraded recreational boating facilities within a three to ten year timeframe. In addition, the regional priorities have been further assessed in order to identify the priorities on a state-wide basis.

This report describes the findings of the recreational boating facilities demand forecasting study for the SEQ South Region of Queensland and is one of five reports prepared to address demand for recreational boating facilities across Queensland.

1.1 Study purpose

The purpose of this Study is to assist in planning for the development of existing and new recreational boating facilities across Queensland. The Study is for the consideration of delivery agencies as ***one*** tool in a broader assessment process to choose and prioritise sites for development. Other considerations will include (but are not be limited to):

- land availability;
- detailed engineering feasibility studies;
- affordability of the particular proposal against available funds and equity considerations;
- detailed environmental feasibility and concurrence agency feedback;
- agreement from land-side partners (councils and port authorities) who are willing to commit resources;
- state-wide equity when deciding priority;
- state-wide need when assessing priority against available funds; and
- the need to exercise the “commonwealth” concept whereby more densely populated areas subsidise more remote locations (meaning that there has never been and will not be an exact correlation between boat registration fees collected in an area and the funds invested).

The recommendations detailed in this report are intended to assist the strategic planning for the provision of recreational boating facilities in the SEQ South Region. The report provides a framework to guide more in-depth investigations by State and Local Government in future, and recommends the need for further investigations.

Further work required would include preparation of detailed design and construction plans, full cost estimates, stakeholder consultation and other technical research required to assess the potential of existing facilities for upgrades and expansion, and/or the potential of new sites for recreational boating facilities.

It is recognised that not all the recommended priorities are likely to be completed within this period due to funding availability and other factors influencing priorities at a given time. The plan is intended to provide delivery agencies with a strategic guide for the potential development of existing and new facilities which will be reviewed and adjusted, to respond to new opportunities and challenges as they arise.

1.2 In Scope

The scope of the Study is as follows:

- overview of regional boating activity and facilities
- consultation activities and outcomes
- recreational boating demand analysis
- identification of needs
- determination of needs.

1.3 Out of scope

The following factors were considered 'out of scope' for this Study:

- Dredging - development of existing, and identification of potential new sites, that require dredging.
- Facilities intended primarily for marine passenger transport or other commercial use.
- Common use (recreational/commercial) facilities where the projected recreational usage is less than 50%.
- Maintenance of recreational boating facilities except where reconstruction or expansion of an existing facility is proposed.
- Direct surveys to individual members of recreational vessels by mail and consultation with users at boat ramps.
- Private recreational boating infrastructure not accessible by the general boating community.
- Land acquisition.

1.4 Limitations and assumptions

The limitations and assumptions of this study agreed at inception were:

- The report is not intended to be used as the sole tool in the allocation of future recreational boating facilities in any region.

- The report did not consider the development of existing and potential new sites that require dredging (based on desktop analysis of sites).
- The consultation is not designed to be inclusive of all stakeholders, but instead to allow the managers and peak bodies representing recreational boat users to provide their feedback. The consultation process is one of the elements of the project that contributed to the identification of priorities and provided valuable information for the project team.
- Wave or hydrodynamic modelling, hydrographic surveys, geotechnical investigations and other detailed engineering and environmental assessments have not been carried out as part of this study.
- The development of the recommended priorities will be subject to a number of factors including, but not limited to:
  - availability of funds to deliver projects
  - cooperation and agreement between delivery agencies
  - state-wide equity
  - sufficient depth of water in the vicinity of the existing/new site
  - tidal range and water depths in the channels leading to the existing/new site
  - wave climate (average and storm/cyclone)
  - environmental suitability
  - development approvals.
- Should the recommended priorities require dredging following detailed hydrographic survey and sediment sampling, the sites will be developed as recommended if considered viable on the grounds of funding and approvals.
- It is recognised that the recommended priorities may no longer be considered suitable for development following detailed site investigations. As a result, alternative sites will need to be investigated (including existing and new sites not identified in this Study) in order to cater for projected demand.

1.5 Methodology

The tasks performed within scope are as follows:

1. **Overview of regional boating activity and facilities** - the general characteristics of each of the five regions and the influences on recreational boating activity were identified. The overview of facilities is based on the following:
   - A literature review including relevant legislation, coastal management plans, local and regional planning initiatives;
   - A review of available data sources relating to recreational boating and facility demand in Queensland; and
   - Information gained during initial consultation with TMR representatives.
2. **Consultation activities and outcomes** – consultation was undertaken with peak marine bodies, clubs and state government, councils and port authority entities at

all levels in the form of workshops, project email and telephone, fact sheet, online community survey and the Brisbane Boat show. Consultation with the public was limited to feedback via the online community survey, the Brisbane boat show and/or through peak representatve bodies. Details of the consultation methodology is provided section 4 of this report.

3. **Recreational boating demand analysis** – a demand analysis was undertaken to determine current and future demand and the areas within the state where the demand for recreational boating facilities is the greatest. The demand analysis identified high, medium and low demand recreational boating catchments for each region. Details of the demand analysis methodology are provided in section 5 of this report.
4. **Identification of needs** – the need for recreational boating facilities in the SEQ South region were idenftied based on the outcomes of the consultation process and the demand analysis process. These sites then provided the targeted locations to conduct a spatial analysis. An assessment of the suitability of existing facilities for upgrades and potential new sites was undertaken using INDEGO (Geographic Information System (GIS) multi criteria analysis tool). This process allowed the consideration of a variety of environmental, physical, social and built environment criteria while simultaneously supporting a range of inputs from project stakeholders at the same time. A detailed methodology is provided in Appendix B.
5. **Determination of priorities** – Prioities and recommendations have been identified based on the results of the consultation, demand forecasting and GIS analysis. A detailed methodology of the process to determine the priorities is provided in section 7.

2. Regional overview

2.1 Location

The South East Queensland – South (SEQ South) Region extends from Logan and Cleveland in the north to the New South Wales border in the south and incorporates Redland, Logan, Ipswich and Gold Coast City Councils and Lockyer Valley and Scenic Rim Regional Councils (Figure 1).

2.2 Regional planning

Development, planning and population growth in the region is managed through the regional planning process of the South East Queensland Regional Plan 2009- 2031 (SEQ Regional Plan) which aims to sustainably manage regional growth in the South East Queensland Region (DIP, 2009).

In addition, coastal areas in the SEQ South Region are managed by the South-east Queensland Regional Coastal Management Plan (SEQ Regional CMP).

The State Policy for Coastal Management (management policy) is currently being prepared under the Coastal Protection and Management Act 1995 (Coastal Act). The purpose of the management policy will be to provide direction and guidance about the management of coastal land in Queensland to achieve the objectives of the Coastal Act. The management policy recognises the Recreational Boating Facilities Demand Forecasting Study as an important tool in identifying new locations for the development of minor public maritime infrastructure.

2.3 Population and demographics

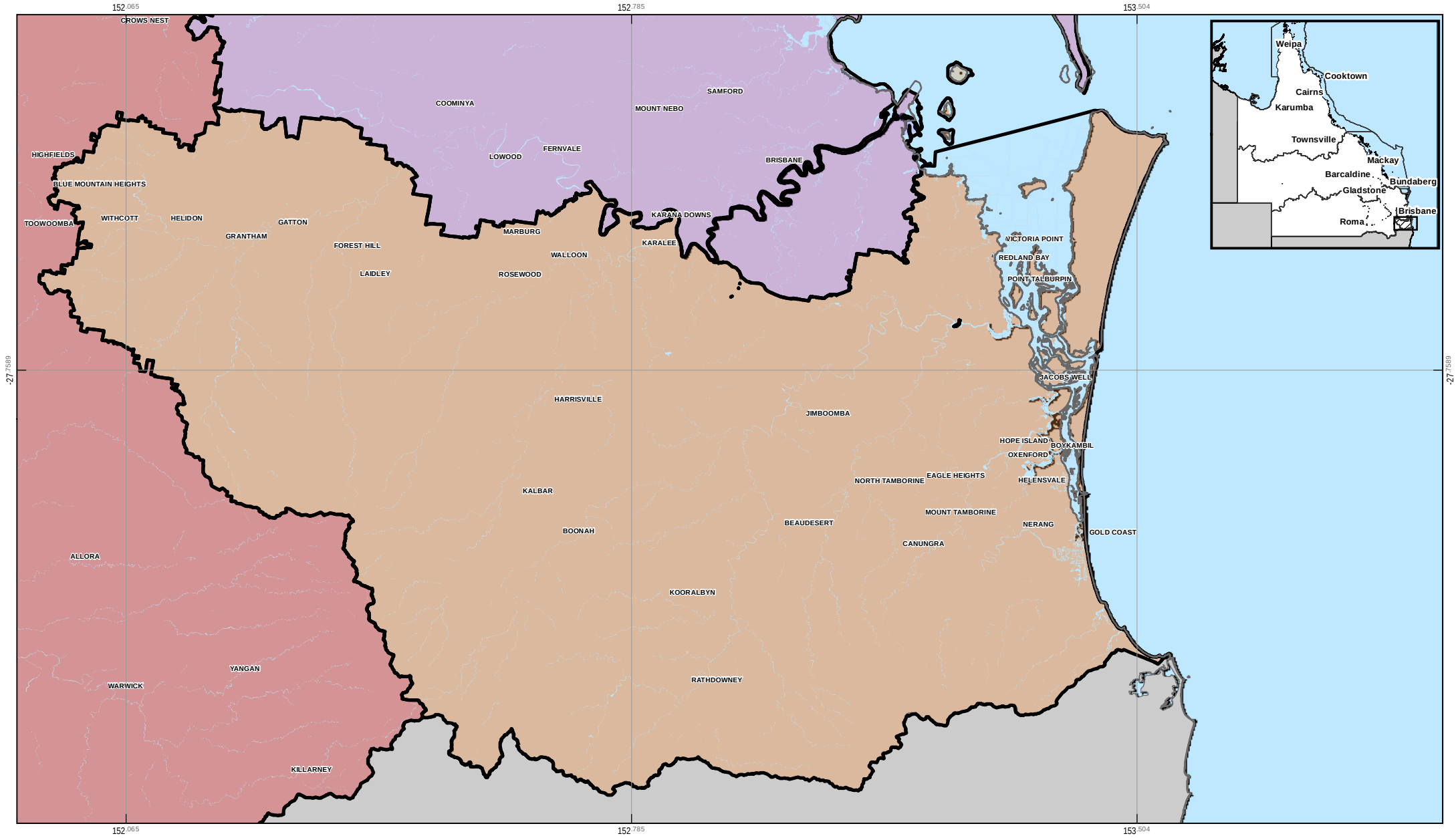
Population growth contributes significantly to the economic, social and urban development of communities within the SEQ South Region and is a major contributor to the current and predicted future development of the region.

SEQ South Region population

As at 30 June 2008, the estimated resident population of the SEQ South Region was 1,129,056, representing 26.3% of the state's population (OESR, 2009).

The population of SEQ South Region increased by 29,038 between 30 June 2007 and 2008 which was 29.7% of the state's population growth over this period. The region recorded a population growth rate of 2.6% between 30 June 2007 and 2008, higher than the overall Queensland growth rate of 2.3% during the same period (OESR, 2009).

SEQ South Region's population in 2026 is projected to be 1,771,029, accounting for 30.1% of Queensland's total population at this time (OESR, 2009).



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LEGEND

- TMR Region
- Drainage
- Central
- Northern
- SEQ - North
- SEQ - South
- Southern

Recreational Boating Facilities Demand Forecasting Study

Job Number	41-22459
Revision	A
Date	30 AUG 2011

Overview Region Map SEQ South

Figure 1

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Data source: DTMR Region, DTMR, (2010) Populated Places Coastline, State, GA, (2007), Drainage, DERM, (2010). Created by: MS, EA, WW

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2.3.1 Sub-Regional population

Gold Coast

The Gold Coast has the largest population in the SEQ South Region with a resident population of approximately 484,638 in 2007. The majority of the population is concentrated along the coast between Yatala and Coolangatta. The population of the Gold Coast is expected to reach approximately 737,986 by 2026 (OESR, 2009).

The largest increases in population within the SEQ South Region also occurred within the Gold Coast City Council area, accounting for 45.5% of all growth in SEQ South Region (OESR, 2009).

Logan City

The City of Logan comprises both urban and rural communities and in 2007, had a population of approximately 264,887 (OESR, 2009). Logan City accounts for 24% of the SEQ South Region's total population and is expected to experience significant growth and reach a population of approximately of 386,962 by 2026 (OESR, 2009).

Logan City Council has identified regional growth corridor areas which is reflected in the project population increases (DIP, 2009)

Redland City

Redland City is a coastal local government situated on Moreton Bay, south-east of Brisbane. In 2007, Redland City had a population of the approximately 134,068 which accounted for approximately 12.1% of the SEQ South region's total population (OESR, 2009). It is expected that the population of Redland City will grow to reach a population of 181,688 people by 2026 (OESR, 2009).

Ipswich

The City of Ipswich comprises most of the western corridor, which the key growth corridor for South East Queensland. In 2007 Ipswich City Council had a resident population of approximately 147,973. Ipswich was recognised as the fastest growing local government area between 2007 and 2008 with a growth rate of 4.1% (OESR, 2009), with this area expected to continue to be the fastest growing LGA in the SEQ South Region with a predicted growth rate of approximately 4.6%, to reach an estimated population of 350,333 by 2026 (OESR, 2009).

Scenic Rim Regional Council

Scenic Rim comprises rural and urban communities, with growth in the region occurring largely as a result of industrial development. The Scenic Rim region had a population of approximately 35,580 in 2007, accounting for 3.2% of the SEQ South region's total population (OESR, 2009). The Scenic Rim region is expected to be the second fastest growing LGA in the SEQ South Region with a growth rate of approximately 2.9%, reaching an estimated population of 61,806 by the 2026 (OESR, 2009).

2.4 Development and land use

The purpose of the SEQ Regional Plan is to manage regional growth and change in the most sustainable way to protect and enhance the quality of life in the region (DIP, 2009). The following provides an overview of the each of the local government areas of this region and the development and land use implications for the SEQ Regional Plan.

2.4.1 Gold Coast

More than 60% of the Gold Coast is located in the Regional Landscape and Rural Production Area which supports rural production, water quality, scenic amenity and outdoor recreation (DIP, 2009).

The north eastern part of the Gold Coast is retained as a regionally significant inter-urban break separating the greater Brisbane area from the Gold Coast (DIP, 2009). Growth in the north eastern area has been limited to land at Steiglitz which is to be developed as the Gold Coast's marine industry precinct.

The Gold Coast comprises of a wide range of residential environments**,** and it is anticipated that an additional 143,000 dwellings will be required to by 2031 (DIP, 2009).

The Gold Coast's economy has predominantly been linked to tourism and recreation. However, it is making a shift towards becoming much more diversified with commercial, retail and industrial areas, and specialist health, education and technology activities contributing to the employment sector.

The marine industry's economic and employment growth will continue through an expansion of the Gold Coast Marine Precinct at Coomera and the proposed establishment of a marine industry precinct at Steiglitz (DIP, 2009).

Tourism will remain a key economic driver for the region therefore, it will be important to protect the landscape values of the area both along the coast and the hinterland to encourage recreation and nature based tourism activities.

Further opportunities for tourism and associated development, integrated with local services and residential activity, will be accommodated in urban centres along the coast, including Southport, Surfers Paradise, Broadbeach, Mermaid Waters, Miami, Burleigh Heads, Palm Beach, Currumbin, Tugun and Coolangatta (DIP, 2009).

2.4.2 Logan City

Logan City is situated between Brisbane, Gold Coast and Ipswich – three major centres in SEQ. As a result, urban development and economic growth in Logan has been affected by a lack of employment self containment, with a significant portion of the population living in Logan, but travelling to the other centres in the region for work.

Logan City contains several areas with potential to accommodate urban development, with other localities that, subject to further planning, could accommodate additional long-term urban development (DIP, 2009). The SEQ Regional Plan has identified the South Western Corridor located between the existing urban area of Logan and the

southern boundary of the LGA, adjacent to the Mount Lindesay Highway and the Brisbane-Sydney Rail Corridor. The South Western Corridor has the potential to accommodate regionally significant levels of residential and employment growth, which would alleviate growth pressures on the southern area of SEQ, including the Gold Coast (DIP, 2009).

By 2031, approximately 70,000 additional dwellings will be required to accommodate Logan's expected regional growth (DIP, 2009). Several areas in Logan have been identified as regional development areas with the potential to cater for future growth. These areas include Park Ridge, which is contiguous to Logan's existing urban area; Flagstone, which is expected to become a major regional activity centre; and Yarrabilba, which could potentially develop into a self contained community.

Tourism has not been identified as a key economic driver for the Logan area with the economy historically comprising of retail, manufacturing, education, health and community service activities (DIP, 2009). However, opportunity exists to boost tourism in the area through recreational activities particularly with the establishment of the Wyaralong Dam in the adjoining Scenic Rim region.

2.4.3 Redland City

Redland City comprises a mix of urban, rural bushland and island communities with development focused around the main centres of Capalaba, Cleveland, Victoria Point, Wellington Point, Ormiston, Redland Bay, Birkdale, Thorneside and Alexandra Hills.

Redland City is predominantly within the Regional Landscape and Rural Production Area as its rural communities support viable rural enterprises, and areas of scenic amenity, environmental and biodiversity value, including koala conservation areas and agricultural lands (DIP, 2009).

By 2031, approximately 21,000 additional dwellings will be required to meet Redland's expected population growth, with the existing urban areas able to cater for most of the dwellings required through infill development (DIP, 2009). Future development opportunities exist at Cleveland and Redland Bay, and in the Weinam Creek marine area and environs (DIP, 2009). However, these areas are dependent on transport infrastructure upgrades to support future development.

Population growth is also expected to occur on the Moreton Bay Islands, necessitating effective planning to manage growth and protect the natural environmental values of the islands. Upgrading services, efficient water-based transport and protection of the environmental values of the islands and Moreton Bay are all necessary to manage growth on these islands (DIP, 2009).

It will be important to maintain and upgrade public boat ramp facilities in the area to contribute to the improvement of water-based transport as well as support the economy and employment through tourism activities.

According to the SEQ Regional Plan, ecotourism and tourism opportunities will continue to grow due to the city's extensive natural environmental assets, including its bushland, koala habitat areas, Moreton Bay and its islands (DIP, 2009).

2.4.4 Ipswich

Ipswich City comprises a mix of urban and rural communities with development focused around the Ipswich CBD, the city's eastern and western corridors and, Springfield. Ipswich City will continue to experience significant growth, playing a key role in the SEQ Regional Plan's preferred settlement pattern. The SEQ Western Corridor, in which Ipswich City is located, provides substantial opportunities to accommodate new residential communities and employment growth, supported by infrastructure provision (DIP, 2009).

By 2031 approximately 118,000 additional dwellings will be needed to accommodate Ipswich's expected regional growth, population increase and demographic change (DIP, 2009). Significant residential and employment growth is expected to occur, particularly in the areas of Springfield and the Ripley Valley. Ripley Valley is identified as a Regional Development Area to be developed as an urban community with a full range of services and transport options (DIP, 2009). It is anticipated that the Ripley town centre will provide major regional activity centre functions to supplement the commercial and administrative roles of the Ipswich CBD and Springfield.

2.4.5 Scenic Rim and Lockyer Valley

The Scenic Rim and Lockyer Valley are predominantly located within the Regional Landscape and Rural Production Area of the SEQ Regional Plan.

Gatton and Beaudesert, located in Lockyer Valley and Scenic Rim respectively, are identified as principal rural activity centres in the SEQ Regional Plan, and are considered the focus for sub-regional growth in office-based business, retail and commercial activities and government and health services (DIP, 2009). Both of these centres are expected to continue to grow through future development identified in the immediate surrounds.

Beaudesert South is an Identified Growth Area under the SEQ Regional Plan contiguous to existing urban development in Beaudesert. The Beaudesert South area has the potential to accommodate residential growth subject to land capability and suitability assessments, riparian corridor protection, infrastructure requirements and responsibilities, appropriate land uses and other relevant matters (DIP, 2009).

Gatton North is considered a Local Development Area in the SEQ Regional Plan which will function as an enterprise precinct that provides land for industrial purposes (DIP, 2009). It is anticipated that residential and population growth in these centres will be supported by employment opportunities in the Bromelton State Development Area in Scenic Rim, and the Helidon Hazardous Industry Area and the Gatton North Enterprise Precinct in Lockyer Valley.

2.5 Regional overview of tourism and recreation

The SEQ Regional Plan recognises the importance of regional landscapes, particularly coastal waters, foreshores, waterways and water sources/catchments in providing community benefits and supporting significant landscape values for the region. Coastal waters and foreshores provide benefits such as fisheries habitat, recreation

opportunities, fishing, transport, extractive industry, tourism, scenic amenity and resilience to natural hazards and climate change (DIP, 2009).

Coastlines and waterways support recreational boating activities with outdoor recreation activities contributing to better social, health, economic, tourism, cultural and environmental outcomes (DIP, 2009e). The SEQ Regional plan aims to provide a variety of outdoor recreation opportunities to meet priority community needs, while protecting other regional landscape values (DIP, 2009).

One mechanism the plan identifies is the South East Queensland Outdoor Recreation Strategy (SEQORS). This Strategy aims to coordinate outdoor recreation activities, services and facilities to ensure that they are managed for safety sustainability and compliance with relevant laws (DIP, 2010).

The SEQORS was released in October 2010 and contains a set of eight priority actions for the management of outdoor recreation throughout the region. The priority actions of the strategy that are of particular relevance to recreational boating (and fishing) are detailed in Table 1. Each of these provides a mechanism that can be used for the future implementation and management of recreation boating facilities in this region and assist in the coordination of the provision of facilities.

Table 1 SEQORS priority actions

SEQORS Priority action
Develop an implementation plan to guide planning, development and management of outdoor recreation activities, places and infrastructure in SEQ.
Coordinate outdoor recreation policy, development and management through Queensland's planning system
Develop and implement mechanisms to protect and manage multi-tenure areas for outdoor recreation
Prioritise outdoor recreation opportunities and community green space in management plans for state lands.

2.6 Regional overview

The key characteristics and influences on recreational boating activity in the SEQ South Region can be summarised as follows:

- The SEQ South Region is experiencing on-going population growth, with highest rates of growth in Gold Coast City and Ipswich City.
- There are significant environmental management and constraints on the location of boating facilities and associated infrastructure under the SEQ Regional Plan and State and Regional Coastal Management Plans.
- The Gold Coast's waterways are considered an important part of the community as they contribute significantly to the tourism and boat building industry in the area.

- There are several new major growth areas designated within the SEQ South Region that will need to be considered in determining catchment population for existing and future recreational boating requirements.

3. Recreational boating facilities

3.1 Introduction

The current recreational boating facilities of the SEQ South Region incorporate both TMR facilities, and facilities that are owned and managed by other organisations such as local governments and water storage managers. This section identifies the current recreational boating facilities available to the public within the region.

3.2 Overview of current facilities

In order to support regional development and cater for future population growth in the SEQ South Region, it is important to establish and maintain adequate recreational boating infrastructure and supporting community facilities. These facility numbers and locations also form the basis of the demand assessment undertaken for this project and detailed in section 5 of this report.

Table 2 details the TMR recreational boating facilities located in the SEQ South Region, by LGA, while Table 3 details facilities owned by other entities, such as local government.

Table 2 TMR owned recreational boating infrastructure[4]

Local government	Facilities					
	Boat ramps	Boat ramp lanes	Pontoon	Floating walkway	State boat harbour	Jetty
Gold Coast City Council	26	47	8	1	-	5
Ipswich City Council	1	1	-	-	-	-
Logan City Council	6	7	-	-	-	-
Redland City Council	11	22	2	-	1	8
TOTAL	**44**	**77**	**10**	**1**	**1**	**13**

[4] Information in this table has been obtained from 2009 and 2010 data provided by TMR. Please note that there may be some omissions in the information available.

Table 3 Other recreational boating infrastructure[5]

Local government	Facilities					
	Boat ramps	Boat ramp lanes	Pontoon	Floating walkway	Boat harbour	Jetty
Gold Coast City Council	18	21	2	1	-	2
Ipswich City Council	3	3	-	-	-	-
Redland City Council	7	14	2	1	-	3
Scenic Rim Regional Council	4	5	-	-	-	-
TOTAL	**32**	**43**	**4**	**2**	**0**	**5**

3.3 SEQ South Region and Recreational Boating

Tourism and recreation are dependent upon high quality coastal resources. A number of coastal areas in the SEQ South Region experience high visitation, which contributes significantly to the state and regional economies (EPA, 2006). These high use recreational coastal locations usually require additional management to maintain or protect the coastal resources and values, as well as appropriate infrastructure compatible with the coastal environment. Development in coastal areas must also be compatible with surrounding development and residential areas to reduce any impacts on the amenity of the area.

According to Gold Coast City Council [GCCC] (2009), the public boat ramp located at Main Beach, is popular for both recreational boating and commercial activities. However, due to the high recreational use of Main Beach, car parking and access to the boat ramp is significantly impacted, particularly during the Gold Coast Indy (GCCC, 2009).

As a result, infrastructure and access points on the coast are to be located and designed to not only avoid or minimise adverse impacts on coastal resources and values, but to maintain and improve access to boat launching facilities, particularly in high use recreational coastal locations (EPA, 2006).

Locations for marine infrastructure must minimise the need for capital and maintenance dredging, be compatible with adjacent marine park zones and the development status of tidal waterways, and minimise adverse effects on coastal wetlands and other coastal resources (DIP, 2009). Issues associated with the construction and maintenance of maritime infrastructure includes:

[5] Information in this table has been obtained from 2009 and 2010 data provided by TMR and collated from other available sources. Please note that there may be some omissions in the information available.

- impact on coastal resources, including riparian vegetation, fish habitat areas, wetlands and physical coastal processes;
- declining areas of undeveloped tidal waterways or undeveloped sections of tidal waterways;
- managing the impacts on marine sites from anchor damage and other disturbance associated with recreational boating; and
- managing the impacts of dredging associated with providing and maintaining access to maritime infrastructure, particularly in shallow tidal waterways (EPA, 2006).

Whilst there is a significant amount of recreational boating facilities currently located in the SEQ South Region, it will be important to establish more recreational boating and marine infrastructure to support the predicted population growth in the region and maintain a wide range of recreation and tourism opportunities.

In 2009, a report for the *Identification of the Present and Future Recreational Boating Infrastructure in Redland City – a 10 year Infrastructure Plan* was prepared for Redlands City Council. The report identifies the action Redland City Council needs to take to service the increasing demand for recreational boating facilities within a 10 year planning horizon (Rose, 2009).

3.4 Boating Infrastructure Capital and Maintenance Program

Across the entire SEQ South Region, a number of boat launching facilities have been established or upgraded recently as part of the TMR *Boating Infrastructure Capital and Maintenance Program* (BICM Program) between December 2008 and December 2010 (TMR, 2010). The recent projects are as follows:

- new pontoon at Jacobs Well;
- reconstruction of single lane boat ramp at Budds Beach (Birt Avenue), Gold Coast;
- update equipment for Sand Bypass Station (at Gold Coast Seaway);
- upgrade of Wellington Point Main Road Jetty;
- resurface boat ramp at Thorneside (Helen Street);
- new pontoon at Southport Pier;
- new pontoon at North Stradbroke Island (One mile pontoon);
- reconstruction of three lane boat ramp at Cabbage Tree Point;
- new Sailability pontoon at Manly Boat Harbour;
- new pontoon at Cavill Avenue, Surfers Paradise;
- new two lane boat ramp at Amity Point, North Stradbroke Island; and
- new pontoon – Southport Pier Pontoon.

The following projects are on the current program, with the view to be completed by the end of 2014:

- new two lane boat ramp at Macleay Island;
- reconstruction of single lane boat ramp at Redland Bay Moores Road boat ramp;
- new two lane boat ramp at Jock Kennedy Park, Russell Island;
- new pontoon at Weinam Creek boat ramp;
- new floating walkway at Paradise Point Donald Avenue boat ramp;
- new boat ramp Cleveland Point, William Street (Raby Bay); and
- new floating walkway at Palm Beach, Murlong Court Tallebudgera Creek.

4. Consultation activities and outcomes

4.1 Introduction

Stakeholder consultation was an integral part of the project and was delivered across Queensland over a six month period, from March to August 2010. Feedback from this consultation process informed the inventory, needs assessment, and prioritisation of sites, providing a qualitative and structured assessment from the perspective of key and other stakeholders, and the community. This section outlines the consultation activities undertaken as part of this study and the key findings from this engagement process.

4.2 Consultation activities

To maximise opportunities for community and stakeholder feedback, a range of consultation activities were delivered, including awareness raising tools, stakeholder workshops and surveys. Activity details, timing and participation rates are discussed below.

4.2.1 Project website

The establishment of a project page featured on the Maritime Safety Queensland website (www.msq.qld.gov.au) provided a mechanism through which the boating community could obtain up to date information on the Recreational Boating Demand Forecasting Project, and make a submission.

The website provided the community and stakeholders with access to specific information about:

- the project aims and objectives;
- the consultation process; and
- how to contact the study team to provide input and/ or obtain information.

4.2.2 Project email and telephone information line

A dedicated project email address (recboating@ghd.com) and free call 1800 telephone information hotline (1800 086 640) were established and widely promoted on the website and communication materials for the duration of the project.

Through this avenue, stakeholders and the wider community were able to contact the study team directly to raise project-related issues or obtain information.

4.2.3 Fact sheet

A fact sheet was developed in May 2010 to provide a project overview for stakeholders and the public. The fact sheet was available through the project website and was distributed to the key and other stakeholders prior to the workshops and meetings.

4.2.4 Community survey (Get Involved website)

The community of Queensland was invited to provide feedback on recreational boating facilities by participating in an online survey, via the Queensland Government's *'Get Involved'* website (www.getinvolved.qld.gov.au). Hard copies of the community survey were also distributed to individuals who preferred to provide written feedback.

The survey was structured as a variety of open and multiple answer questions to gain users' feedback on:

- recreational boating activity patterns;
- utilisation and satisfaction with existing recreational boating facilities;
- upgrades needed to existing facilities; and
- new facility needs and suggested sites/ localities.

The Community Survey was conducted for a period of three months from June to August 2010. A number of Councils and peak bodies for recreational boating and fishing also promoted the Project and survey on their websites during this period.

At the completion of the Community Survey, a total of 664 submissions were received from around the State, or which 106 were received from resident in the SEQ South Region.

4.2.5 Stakeholder workshops

A series of workshops were conducted throughout Queensland with key and other stakeholders to discuss recreational boating needs and current issues in each region. Stakeholders were identified in collaboration with MSQ, through desk-based research and reference to MSQ databases.

The workshops were conducted as round table discussions to provide attendees with the opportunity to 'have their say' on current use patterns, limitations and potential opportunities associated with recreational boating facilities at a local level. Consultation with these groups was used to inform and provide validation for the demand forecasts.

4.2.6 Brisbane Boat Show

The community survey was available as part of the Brisbane Boat Show held on the 26-29 August 2010. This process was supported by MSQ representatives.

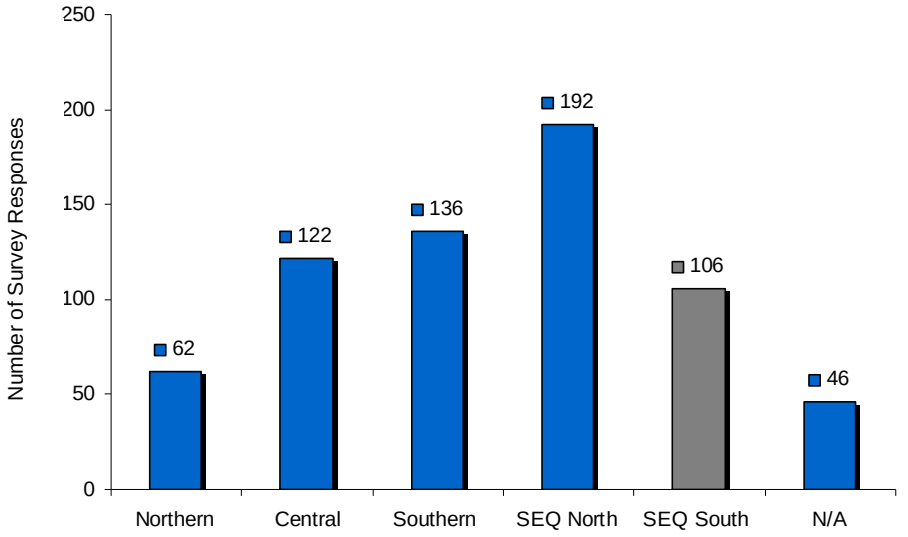
4.3 Community survey results

4.3.1 Sample characteristics

Survey response

Of the 664 responses received from around the state, 106 surveys were received from resident in the SEQ South Region, representing 16% of the total sample (Figure 2).

Figure 2 Survey response



Place of residence

The geographic spread of survey respondents in the SEQ South Region is shown in Table 4 below. Greatest interest came from Redland City, followed by Gold Coast and Ipswich Cities.

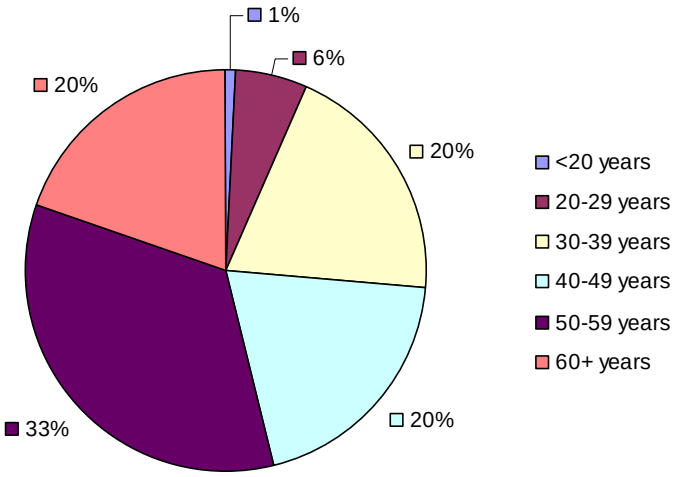
Table 4 Survey response by LGA

LGA	Respondents	% of TMR region	% of Qld
Gold Coast City Council	34	32.1%	5.1%
Ipswich City Council	15	14.2%	2.3%
Lockyer Valley Regional Council	8	7.5%	1.2%
Logan City Council	7	6.6%	1.1%
Redland City Council	41	38.7%	6.2%
Scenic Rim Regional Council	1	0.9%	0.2%
Total	**106**	**100.0%**	**16.0%**

Age of respondents

A majority of respondents in the SEQ Region were aged over 50 years old (53%), with 40% aged between 30 and 49 years old (Figure 3). Less than 10% of respondents were aged under 30.

Figure 3 Age profile of survey respondents

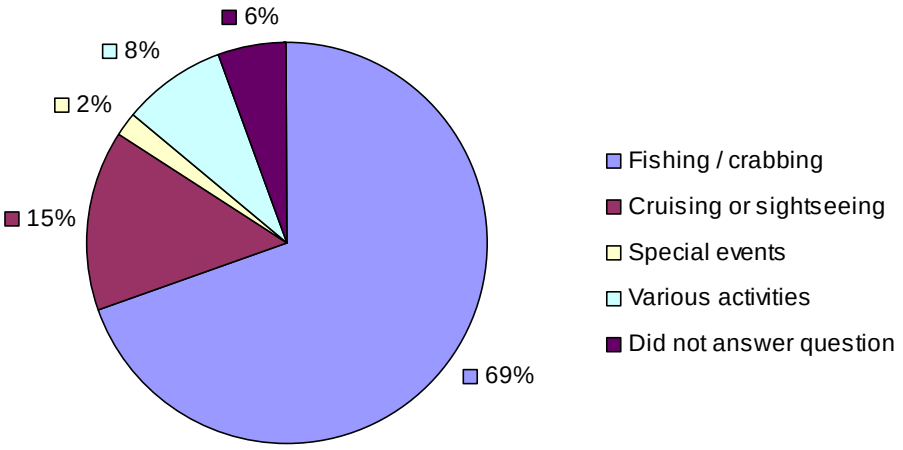


4.3.2 Recreational boating activity

Type of activity

Responses from the SEQ South Region suggest that 'fishing / crabbing' is the most common activity for a given vessel, with 69.4% of respondents participating in the activity (Figure 4). Cruising or sightseeing is also a popular activity in the SEQ South Region with 15% of respondents indicating that they undertake that activity.

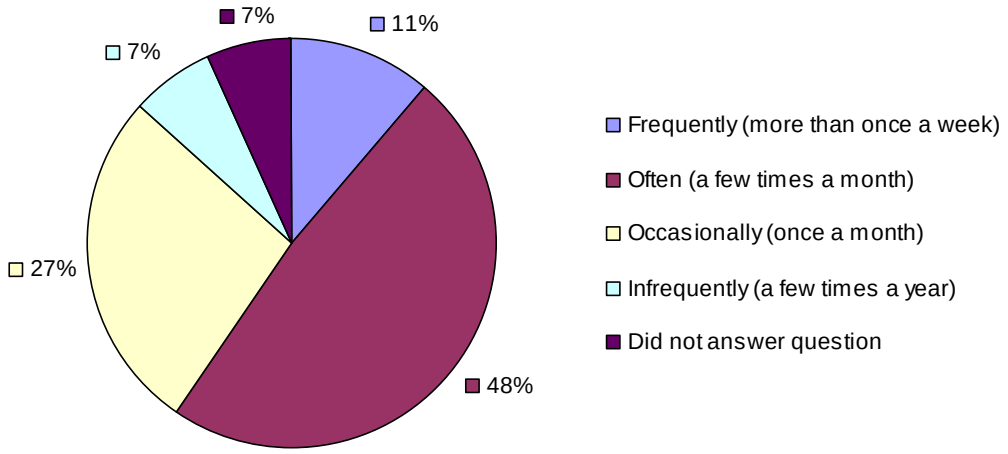
Figure 4 Most common activity for a given vessel



Activity frequency

Approximately 59% of respondents from the SEQ South Region indicated that they participated in recreational boating activities either 'frequently' (more than once a week) or 'often' (a few times a month) (Figure 5). A further 27% of respondents undertake recreational boating activities at least one a month.

Figure 5 Frequency of recreational boating activity



4.3.3 Level of satisfaction with existing facilities

Survey respondents were asked to provide feedback on facilities they use in terms of 'likes' and 'dislikes'. Respondents' answers have been grouped into common themes and are provided in Table 5.

Table 5 Level of satisfaction with existing facilities

Three most common reasons for liking a facility		
Reason	**Frequency**	**Explanation**
Access (water)	Mentioned in 38 responses	Survey results show that respondents' most common reason for 'liking' a facility was for the easy access it provides to the water, and more specifically boat ramps with pontoons to allow for easy and safe loading and unloading of passengers.
Parking and congestion	Mentioned in 19 responses	Respondents also rated parking facilities and lack of congestion very highly when considering boat ramps they enjoy using. Many respondents stated that they enjoyed using a facility where parking spots are easy to secure.
Access (land)	Mentioned in 9 responses	Respondents in the SEQ South Region noted land access to the facility was one of the most important factors in liking a facility, specifically proximity of the facility to their homes and the car and trailer queuing areas available on the site.

Three most common reasons for disliking a facility		
Reason	**Frequency**	**Explanation**
Structural	Mentioned in 34 responses	Respondents also noted structural problems as reasons for disliking particular facilities. More specifically, respondents disliked a boat ramp because it was too steep, poorly designed or impossible to use during some tidal conditions.
Parking and congestion	Mentioned in 21 responses	Lack of parking and high congestion was one of the most common reasons for respondents to dislike a facility. A number of respondents expressed disappointment in a lack of car and trailer parks at certain facilities and year-round congestion.
Access (water)	Mentioned in 17 responses	Analysis of the reasons provided show one of the main reasons for disliking a facility was because of its poor water access. Many respondents stated they avoided a boating facility because it was too difficult and dangerous to launch their boat and / or load and unload passengers.

Comments received in relation to particular facilities within the SEQ South Region are presented in Table 6.

4.4 Stakeholder workshops

4.4.1 Participation

Stakeholder workshops were held in three locations across the SEQ South Region. The location of the workshops and attendance is detailed in Table 7.

Table 6 Survey respondents' feedback - existing recreational boating facilities

RBC	Most liked boat ramp	Comments	Most disliked boat ramp	Comments	Most used boat ramp	Comments
SEQ South	**Boat ramp Jacobs Well** **20m south of jetty** **(Gold Coast City Council)**	◗ multilane boat ramp ◗ excellent parking ◗ good wide beach for loading ◗ easy access by road ◗ suitable facilities nearby such as toilets shops etc.	**Boat ramp William Street** **(Redland City Council)**	◗ channel is very shallow at low tide and needs to be dredged ◗ boat ramp can get quite congested ◗ needs a pontoon for retrieving and launching.	**Boat ramp William Street** **(Redland City Council)**	◗ boat ramp requires maintenance ◗ channel and basin need to be dredged ◗ needs pontoon facility.
	Boat ramp William Street **(Redland City Council)**	◗ provides good all weather protection ◗ adequate parking.	**Boat ramp Victoria Point** **Northern Colburn Ave** **(Redland City Council)**	◗ difficult access nearing and during low tide ◗ access from the boat ramp to the main channel requires dredging ◗ parking is limited and can be quite a distance from the boat ramp ◗ shared arrangement with the barge on the southern boat	**Boat ramp Jacobs Well** **20m south of jetty** **(Gold Coast City Council)**	◗ boat ramp is generally pretty good ◗ doesn't have adequate waste disposal and wash down facilities ◗ toilets need an upgrade ◗ second pontoon would be beneficial.

RBC	Most liked boat ramp	Comments	Most disliked boat ramp	Comments	Most used boat ramp	Comments
				ramp is dangerous ◗ need to separate recreational and commercial use.		
	Boat ramp Victoria Point **Northern Colburn Ave** **(Redland City Council)**	◗ good access to the boat ramp ◗ the pontoon provides deep water access.	**Boat ramp Cabbage Tree Point** **(Gold Coast City Council)**	◗ unprotected from the wind ◗ drops off into deep water ◗ side access to the boat ramp is too steep and rough ◗ needs access on either side, either concrete or sand, to allow easier retrieval out of the wind and a pontoon to allow safe access ◗ limited parking.	**Boat ramp Cabbage Tree Point** **(Gold Coast City Council)**	◗ in windy conditions retrieval is very difficult ◗ needs pontoon or floating walkway ◗ good lighting and facilities.

Table 7 Stakeholder workshops – SEQ South Region

Meeting	Date	Venue	Invitees	Attendees	GHD & TMR attendees
Gold Coast – key stakeholders	12/07/2010	TMR Office, Gold Coast	5	9	5
Gold Coast – other stakeholders	8/06/2010	Southport Community Centre, Gold Coast	14	2	5
Cleveland – key stakeholders	24/06/2010	Council Chambers, Redland City Council	5	3	5
Cleveland – other stakeholders	10/06/2010	Redland Indigiscapes Centre, Cleveland	37	6	6
Brisbane 2 – key stakeholders	21/06/2010	GHD Office, Brisbane	11	5	5
Total attendees			**72**	**25**	**26**

4.5 Key issues and hotspots

4.5.1 Gold Coast

Major issues

Like the Sunshine Coast, stakeholders agreed that water-based recreation is an intrinsic part of living in, and visiting the Gold Coast. Major issues identified by participants at the stakeholder meetings were:

- Gold Coast boat ramps have strong 'destination' appeal across an extensive catchment area – visitors travel from 'everywhere' to use local facilities.
- Parking and congestion at boat ramps is a major problem on the Gold Coast.
- Public boat ramps have not been successfully integrated with marina developments.
- The Broadwater provides the main focus of water-based recreation for a mix of activities – boating, sailing, jet skiing, water skiing, tourist operators etc.
- Congestion on waterways, particularly the Broadwater, due to high volumes of boating traffic – both commercial and recreational.
- High demand exists for multi-use boat ramps and platforms, particularly for motor boats, sailing boats, canoes and jet skis. Tensions can escalate between users when the boat ramp is blocked.
- There is increasing demand for boat ramps, floating walkways and pontoons to be compliant with disability design guidelines.

Key hotspots

Stakeholders agreed that the Broadwater is the top priority for future planning and funding in Gold Coast City. In the absence of suitable sites for new boat ramps, alternative solutions to be suggested were:

- land reclamation; and
- island-based destination facilities e.g. Jabiru Island, Wave Break Island.

Other hotspots and priorities were identified as:

- Harley Park, Labrador – action is required to address existing problems at this popular boat ramp including parking issues, overcrowding, user conflicts and residential amenity impacts;
- The boat ramp at Southport (Anzac Park) is a 3 lane boat ramp with adequate parking. However, some trailer parking spill over is known to occur into the general parkland car park. Sand build up on the ramps has also been identified as an issue. There is potential for this site to be redeveloped in conjunction with the 2018 Commonwealth Games Bid (decision expected in 2011) to cater for an increase in visitation to the Southport area.
- Tallebudgera Creek boat ramp – public safety risks, tidal constraints; and

- Paradise Point boat ramp – good potential for expansion of water-based and land-based facilities to provide access to the seaway.

Harley Park boat ramp, Labrador – popular boat ramp used by a wide range of water craft

New sites

Sites and localities within the Gold Coast offering good potential for future boat ramp development were identified by stakeholders at:

- Southport Swimming Pool – potential for new/ relocated boat ramp (Commonwealth Games project);
- Paradise Point;
- Jacob's Well;
- Calypso Bay;
- Coleman Road/ Coomera Waters site on the Pimpama River; and
- Howard's Landing.

4.5.2 Redland City

Parking

Parking is the critical issue affecting major boat ramps in Redland City. High demand is generated by residents, visitors and recreational users seeking access to Moreton Bay.

Community representatives expressed strong frustration in response to this longstanding issue. Council indicated that spatial and environmental constraints at problem sites may preclude expansion of car parks. Some stakeholders asserted that multi-level car be considered as the most viable option in future.

An associated problem at peak times is congestion at boat ramps and limited queuing areas for people who are waiting.

Illegal parking is a longstanding problem at Weinam Creek, Redland Bay (Bay Journal)

Shared use of public boat ramps

A significant issue for the Redlands is the shared use of boat ramps by the general public and commercial vessels (passenger ferries and vehicle barges). This is problematic from a safety and operational perspective.

Karragarra Island , Southern Moreton Bay – example of shared use boat ramp

Key hotspots

Sites identified by stakeholders as the top priorities for attention in Redland City were:

- Weinam Creek Marina (Redland Bay) – parking demand at the mainland terminal is increasing with steady population growth on the islands;
- Emmet Drive, Toondah Harbour (Cleveland):
  - major conflicts between different user groups within this precinct;
  - extra capacity at boat ramps; and

  - car park expansion.
- Willliam Street (Raby Bay);
- Southern Moreton Bay Islands (SMBI's):
  - new boat ramps needed on the larger islands;
  - separation of public and commercial use of boat ramps desirable to reduce crowding and safety risks;
  - expand public car parks at boat ramps; and
  - growing demand for low-key launching points for paddle and small craft.

New sites

Stakeholders agreed that forward planning should consider both upgrades to existing boat ramps and development of new facilities on the mainland and SMBI's.

Redland City Council has investigated a number of candidate sites for future boat ramp development with the identification that the major constraints on establishing new sites are:

- lack of land with deep water frontage in Council ownership; and
- potential for environmental disturbance, particularly to mangrove and seagrass habitats.

As a long term opportunity, stakeholders expressed some interest in development of a common user destination facility, for longer stays in sheltered waters and retail outlets for visiting boaties to pick up supplies.

4.5.3 Logan City

Limited feedback was received from stakeholders and community representatives in Logan City. While are a limited number of boat ramp facilities within Logan City, there are some potential new sites on the Logan River.

There was some interest in the 'tinnie trail' concept to provide opportunities for exploring the Logan River by boat, linked to on-bank destinations e.g. recreational walking trails and park activity nodes.

4.5.4 Ipswich

The feedback received in relation to the Ipswich region identified that:

- Community demand for boat ramp access is not significant.
- The region has no coastal facilities, therefore the recreational boating focus is on inland waterways.
- Lack of parking is the main problem at existing boat ramps. There is also support for floating walkways at selected sites.
- A recent trend in Ipswich is the growing demand for water access points catering for canoes and kayaks, integrated with local river trails.

- Ipswich City Council is investigating options for enhanced waterway access as part of its strategic planning for public parks.

4.6 Stakeholder priorities

Stakeholders that participated in the SEQ South Region workshops identified key sites as priorities for future development and/or upgrade. These sites are detailed in Table 8. Each of these sites has been assessed in greater detail as part of this project and are addressed further, along with regional priorities in section 7 of this report.

Table 8 Stakeholder priorities

Locality	New/ upgrade	Summary
Weinam Creek, Redland Bay	Land based facilities	• Expand car park to service boat ramp demand. • Disperse public use to other sites.
Toondah Harbour, Cleveland	Land based facilities	• Expand car park to service boat ramp demand. • Disperse public use to other sites. • Increase boat ramp lane width.
William Street, Raby Bay	Land based facilities	• Expand car park to service boat ramp demand.
Southern Moreton Bay Islands	New and upgraded facilities	• Provide new boat ramps on larger islands and expand car parks. • Increase lane widths at existing sites. • Separate public and commercial use of boat ramps.
Gold Coast Broadwater	New and upgraded boat ramps	• Upgrade existing boat ramps to provide extra capacity. • Identify new sites for boat ramp and destination facilities.
Southport	Upgrade boat ramp	• Monitor site near Southport Swimming Pool - potential for new/ relocated boat ramp (Commonwealth Games project).
Tallebudgera Creek	Upgrade boat ramp	• Upgrade existing boat ramp for increased capacity and user safety – additional lanes, parking.
Paradise Point	Upgrade boat ramp	• Upgrade boat ramp and land-based facilities.
Northern Gold Coast	New boat ramp(s)	• Investigate suitability of potential sites in Jacob's Well, Calypso Bay and Coomera Waters.

5. Recreational boating facilities demand analysis

5.1 Introduction

Recreational boating has experienced significant growth over the past twenty years with demand for boat ramps and associated facilities, in many instances, exceeding the capacity of the existing infrastructure.

Boat ownership is the most significant demand driver for marine infrastructure, namely boat ramps, marina berths (both wet and dry), moorings and pontoons. The composition of a region's boating fleet will determine the quantity and type of marine infrastructure demanded. The recreational boating market refers to those boat owners who use their boat to take recreational day trips, cruising in relatively protected waters as opposed to the open sea.

The recreational boating facilities demand analysis is the tool used in this project to determine current and future demand and the areas within the state where the demand for recreational boating facilities is the greatest. This process then guides, along with the consultation outcomes, the identification of priorities for investment in recreational boating infrastructure.

This recreational boating facilities demand analysis:

- defines regional recreational boating catchments throughout Queensland;
- provides a socio-economic overview of each of the identified regional recreational boating catchments;
- provides recreational boating fleet projections relevant to the demand for boat ramps for each of the regional recreational boating catchments; and
- provides boat ramp lane demand projections for each recreational boating catchments.

5.2 Recreational boating industry overview

5.2.1 Introduction

Boat ownership is the most significant demand driver for marine infrastructure, namely boat ramps, marina berths (both wet and dry), moorings and pontoons. The composition of a region's boating fleet will determine the quantity and type of marine infrastructure demanded. The recreational boating market refers to those boat owners who use their boat to take recreational day trips, cruising in relatively protected waters as opposed to the open sea.

MSQ maintains detailed monthly statistics on boat registrations by LGA, with boat registration data collected for various vessel types and length. Available electronic records for boat registrations by length date back to 1999. Within the boat registration data sets, the various boat categories include:

- sail boats;

- boats without sails, including:
  - motor boats without sails;
  - speed boats; and
  - jet skis (or personal recreation vehicles).

Jet skis are not commonly found in marinas, and as such do not represent a major demand driver for marina berths, but can have significant implications for the demand for boat ramps.

Smaller boats can be easily towed on trailers. Industry consultations undertaken by Economic Associates previously reveal that the suitability for towing varies between boat types (i.e. boats with sails and boats without sails).

Similarly, the suitability of vessels for dry storage depends on type and length of vessel. Dry storage is most suitable for vessels with shallow drafts. Therefore, dry storage is most suitable for smaller sail boats (i.e. sail boats up to eight metres) and boats without sails up to around ten metres.

Wet berthing a boat represents a much greater expense than trailing or dry berthing. Therefore, wet berths are generally used only by larger vessels, such as sail boats over five metres and boats without sails over eight metres.

5.2.2 Industry characteristics and trends

International Marina Consultants Pty Ltd (2006) undertook an overview of the changing characteristics within the recreational boating industry. The major trends noted in this overview for marina-stored boats are as follows:

- The average size of marina-stored boats is increasing – The average length has increased from about 10 metres to 13.5 metres over the last ten years. There is little demand for eight metre berths which can be found in some older marinas, with vessels of this size typically being towed. The report suggests the minimum marina size in most new marinas should be 12 metres. However, if the marina will mainly be occupied by power boats, the minimum marina size should be larger than 12 metres.
- Boats are being used less frequently – The number of boats being used at any one time has not increased at the same rate as the number of boat registrations. The damage to the marine environment as a result of the rapid rise in boat registration is likely to be less than anticipated.
- Larger boats are being placed in rack and storage buildings – Dry storage buildings are being designed in Australia and overseas to cater for boats up to 12 metres in length. Currently, the demand for dry storage in Australia is quite low. However, the demand for dry storage is expected to increase significantly as the price of marina berths increases in line with strong demand. There are a number of advantages associated with dry storage including potentially significant cost savings (in cases where reduced boat maintenance costs outweigh the additional costs of lifting boats in and out of the water), protection from UV damage and reduced need for dredging as the boats do not require water space for berths. However, racked dry

storage creates a significant visual impact due to the size of the storage and as a result is unlikely to be included in association with residential development. Dry storage could be included in boat harbours and working marinas.

- Marina sized boats which are used infrequently are parked on hardstands – There has been a growing trend towards storage of power boats and yachts on hard stands due to lower usage and lack of available marina berths. The rates associated with hardstand storage are also less than for boats moored in a floating marina.
- The growth in boat registrations is occurring throughout Queensland – There has been significant growth in boat ownership in Queensland and thus demand for marina berths. Currently, virtually all marinas throughout Queensland are fully occupied indicating a need for additional berthing throughout the state.
- Increasing demand for boat repair facilities – There is an increasing demand for boat repair facilities as a result of an increase in the number of recreational boats and the reduced effectiveness of anti-fouling paints. Only a limited number of boat repair facilities are being constructed and residential type marinas are not planned to include boat repair facilities.

The trends highlighted above indicate that the demand for marine infrastructure throughout the state is anticipated to grow significantly.

Industry consultations previously undertaken by Economic Associates reveal a growing number of new boats purchased in the growth category of motor boats between five and eight metres are manufactured in, or for, the North American market. These boats are generally half cabin cruiser, and appeal to the recreational boating market. Their appeal is largely based on favourable exchange rates which has resulted in North American market vessels being around 30% less expensive than Australian made boats.

The growing popularity of North American market half cabin cruisers has significant implications for boat storage. In Queensland, the maximum width of a trailerable boat is 2.5 metres, but cruisers designed for the North American market are frequently wider than 2.5 metres, particularly those cruisers over five metres. As a result, the most appropriate storage solution for these boats is dry storage at a major marina or boat harbour. It is anticipated that as the popularity of these boats grows, so too will demand for dry boat storage.

5.2.3 Characteristics of recreational boat owners

Maritime Safety Queensland (2004) conducted a boating survey in 2003 to gain an insight into the range, location of and investment in, recreational boating activities on Queensland waters. There were 3,500 responses used in the survey analysis. The major findings of this analysis are as follows:

- The most common types of vessels operated by respondents were dinghies (45%) and speedboats (27%).

- Respondents operated vessels with motors between 7 and 15 horsepower (20%), 16-50 horsepower (36%) or 51-100 horsepower (19%).
- Almost all respondents were male (95.5%) with 40% of all respondents being 55 years and over in age.
- The predominant boating activity is fishing (82.2% daytime, 24.9% overnight), with cruising also a popular recreational boat use (28.4%).
- The majority of boat owners launched their vessel either two to three times per month (40.5%) or every two to three months (31.5%).
- Estuaries, rivers and bays were nominated as the preferred location to operate their vessel.
- A significant share of respondents (16%) travel more than 50 kilometres from their residential address to their preferred boat ramp / mooring site.

5.3 Recreational boating catchments

Catchments for recreational boating infrastructure are typically influenced by:

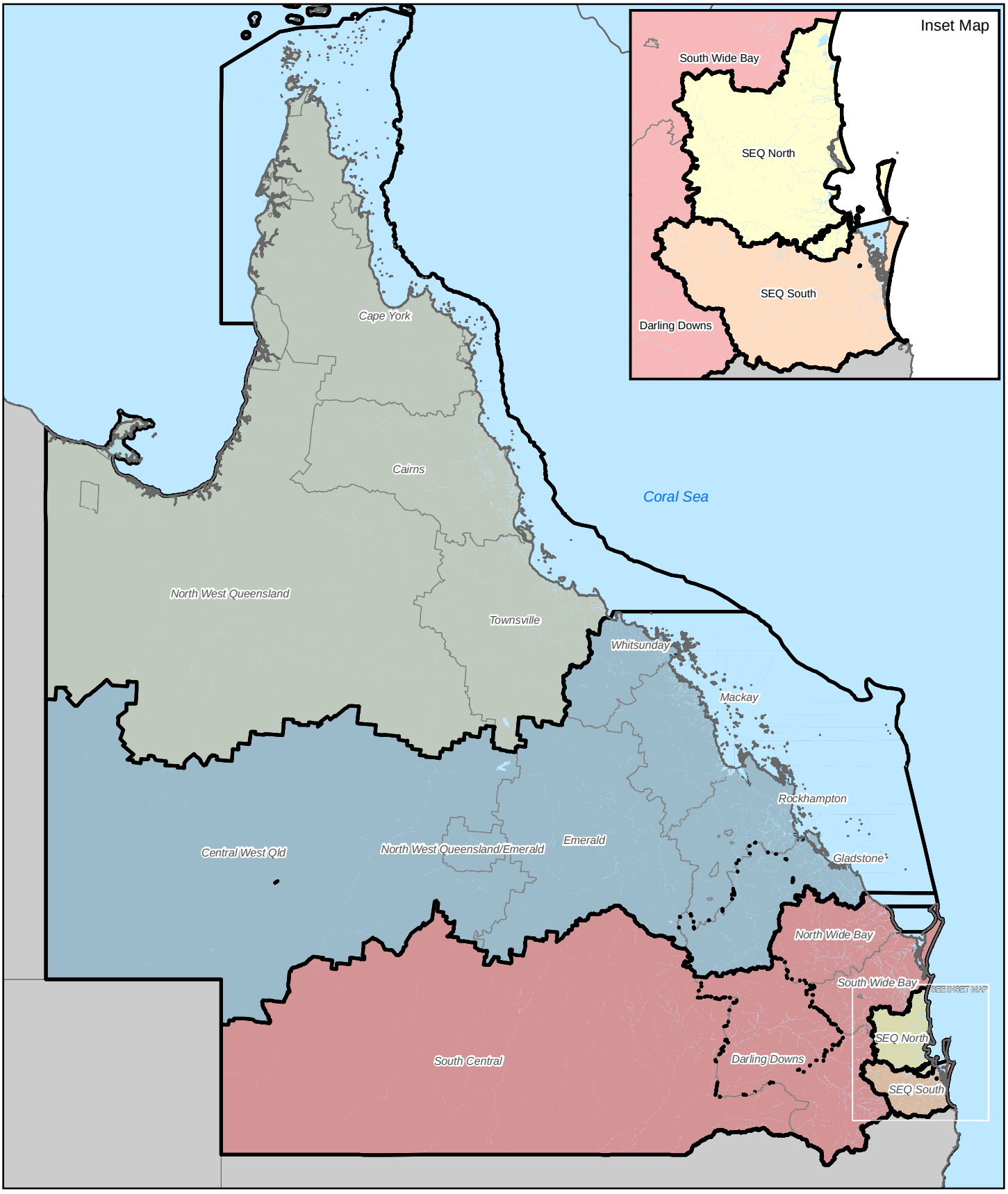
- road transport infrastructure to the facility;
- natural and man-made barriers;
- the location and scale of existing facilities in the area; and
- psychological barriers, such as driving time and perceptions of distance.

Consultation with Marine Queensland, marina operators and yacht clubs consistently indicates that the main catchment for major pieces of marine infrastructure generally corresponds with a one hour driving time from the infrastructure. This is supported by the survey results from MSQ (2004) which indicates a significant share of boat owners travel over 50 kilometres to their preferred boat ramp / mooring. This is not to say that boat owners will not travel for more than an hour to access popular locations, however these would represent exceptions to normal practice and would include major events, special trips and boating holidays.

RBCs were defined in conjunction with TMR, using former LGA boundaries and taking into consideration the five TMR regions in Queensland[6].

For the purposes of this study, sixteen RBCs have been defined with the SEQ South Region being identified as a single RBC, including the LGAs identified on Figure 6 and in Table 9.

[6] It is recognised that boat owners may travel outside of their recreational boating catchment to access facilities, particularly in the case of residents in the SEQ North and SEQ South catchments. However, discussions with TMR determined that the recreational boating catchments defined above were the most appropriate.



LEGEND

- Coastline
- Adjacent State
- Drainage
- Catchment Region
- DTMR Region
- Central
- Northern
- SEQ - North
- SEQ - South
- Southern

1:10,000,000 (at A4)

0 100 200 300 400

Kilometres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

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GHD

Recreational Boating Facilities Demand Forecasting Study

Job Number	41-22459
Revision	A
Date	01 SEP 2011

Recreational Boating Catchments

Figure 6

G:\41\22459\GIS\Maps\MXD\Catchment Map\41_22459_01_Overview_QLD_Catchments.mxd

Data source: DTMR Region, DTMR Catchments, DTMR, (2010) Coastline, State, GA, (2007), Drainage, DERM, (2010). Created by: MS, EA, WW

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Table 9 SEQ South RBC

RBC	LGA
SEQ South	◗ Redland City Council ◗ Logan City Council ◗ Scenic Rim Regional Council ◗ Gold Coast City Council ◗ Ipswich City Council ◗ Lockyer Valley Regional Council

5.3.1 Socio-economic profile of the SEQ South RBC

A socio-economic profile of the RBCs as at the 1996, 2001 and 2006 Censuses of Population and Housing, benchmarked against Queensland was undertaken and is provided in Table 3.1 and Table 3.2 of the report contained in Appendix A.

5.4 Historical fleet size

5.4.1 Introduction

Boat ownership is the principal demand driver for recreational boating infrastructure. The composition of a region's boating fleet will determine the quantity and type of recreational boating infrastructure demanded.

TMR maintains detailed monthly statistics on boat registrations by pre-amalgamated LGA. Boat registration data is collected for various vessel types and length. Available electronic records for boat registrations date back to 1999.

The scope for towing boats is an important defining factor in terms of the nature of recreational boating infrastructure required. Industry consultations revealed that the suitability for towing varies between boat types (i.e. boats with sails and boats without sails). For example, sail boats with keels become difficult to tow, especially if they do not have a retractable keel, at around five metres in length, whereas motorboats can generally be towed up to around eight metres. The Perth Recreational Boating Facilities Study (2008) identifies that at about 7.5 metres in length there is a transition from storage of boats on trailers to water-based pens or moorings.

Similarly, the suitability of vessels for dry storage depends on type and length of vessel. Dry storage is most suitable for vessels with shallow drafts. Therefore, dry storage is most suitable for smaller sail boats (i.e. sail boats up to eight metres) and boats without sails up to around ten metres.

Wet berthing a boat represents a much greater expense than trailing or dry berthing. Therefore, wet berths are generally used only by larger vessels, i.e. as sail boats over five metres and boats without sails over eight metres.

For the purposes of this study, a five year time series by boat length and type for each of the recreational boating catchments has been analysed. This section of the report provides an overview of the growth in the total recreational boat fleet and the estimated size of the recreational boat fleet between 2005 and 2009.

More detailed estimates, including the distribution of the size of registered boats by type in each recreational boating catchment, have been provided in the Economic Associates report contained within Appendix A.

5.4.2 Boat registrations by RBC

Between 2005 and 2009 the SEQ South Region recorded an increase in the number of sail boats and motor boats registered (Table 10), with the SEQ South Region accounting for approximately one quarter of all boat registrations in Queensland.

In SEQ South, along with all other RBCs, the majority of sail boat registrations were between five and fifteen metres in length, whereas the majority of motor boats were three to five meters in length.

Table 10 Boat registrations - 2005-2009

RBC	2005	2006	2007	2008	2009	Growth
Boats with sail						
SEQ South	1,418	1,474	1,544	1,623	1,607	13.3%
Boats without sail						
SEQ South	45,261	47,523	49,518	51,983	53,542	18.3%
Total boats						
SEQ South	46,679	48,997	51,062	53,606	55,149	18.1%

Source: ABS (2010), MSQ (various years)

5.5 Trailerable boat fleet

To estimate the size of the trailerable boat fleet, assumptions have been made regarding the proportion of boats that fall within this category. The following assumptions have been made:

- No boat over ten metres in length is trailerable.
- The incidence of trailerable boats declines significantly for boats over five metres in length.
- For boats registered in Queensland but with international ownership, it has been assumed that all of these boats are kept in marinas, and are hence not part of the trailerable boat fleet.

The proportion of the boat fleet that is assessed as being trailerable (by type and length) is summarised in Table 11.

Table 11 Trailerable proportion of recreation boat fleet

Length	Sail boats	Boats without sail
<3 metres	100.0%	100.0%
3-5 metres	90.0%	100.0%
5-8 metres	50.0%	85.0%
8-10 metres	25.0%	50.0%
10-12 metres	0.0%	0.0%
12-15 metres	0.0%	0.0%
15-25 metres	0.0%	0.0%
>25 metres	0.0%	0.0%

Source: Economic Associates estimates

Across Queensland it is estimated that the trailerable boat fleet accounts for between approximately 86% and 99% of all boats. However, the proportion of boats that were trailerable declined between 2005 and 2009 (from 92.7% of total boats in 2005 to 92.2% of total boats in 2009).

In the SEQ South Region, the rate of growth in the size of the trailerable boat fleet between 2005 and 2009 was 18.0% (Table 12).

Table 12 Estimated size of trailerable boat fleet - 2005-2009

RBC	2005	2006	2007	2008	2009	Growth
Trailerable boat fleet						
SEQ South	41,920	43,902	45,761	47,984	49,467	18.0%
Proportion of total boats						
SEQ South	73.8%	72.8%	69.7%	70.4%	71.7%	

Source: Economic Associates estimates

5.6 Trailerable boat fleet projections

5.6.1 Introduction

The trailerable boat ownership is the most significant demand driver for boat ramps. The composition of a region's boating fleet will determine the quantity of boat ramps demanded. Therefore, to estimate demand for boat ramp lanes within each catchment in Queensland, it is necessary to estimate the size and composition of the boat fleet

within each catchment area. Boat registrations represent the best source of data for estimating the size of the boat fleet. While it is recognised that unregistered craft may also make use of boat ramps, there are no data sets available to assess this impact on boat ramp lane demand, but it is unlikely to be significant.

Boats are frequently used in local government areas outside of where they are registered, however the catchments have been defined to minimise the incidence of trailerable boats being utilised outside the catchment in which they are registered[7].

5.6.2 Methodology

In order to prepare trailerable fleet projections, assumptions are made regarding the following factors:

- projected population by catchment (PIFU medium series projections used);
- projected incidence of boat ownership (boat registrations per 1,000 persons); and
- projected incidence of boats requiring a boat ramp (informed by historical data trends).

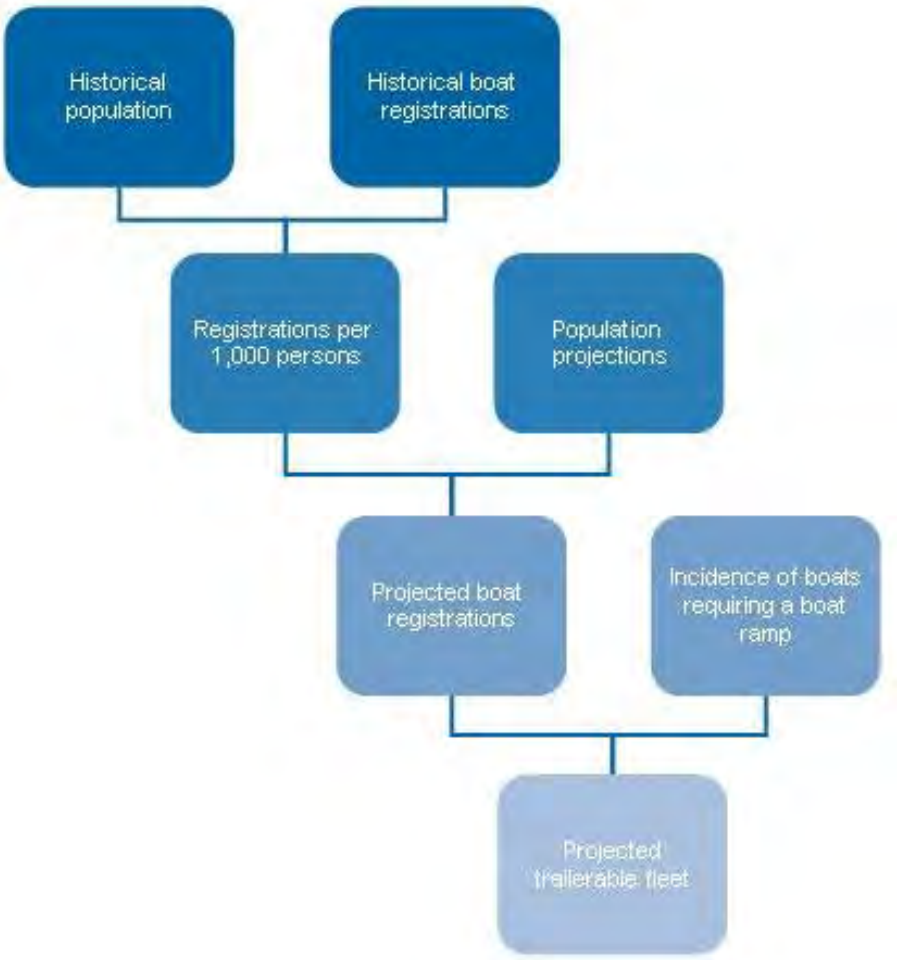
Analysis has been undertaken for two scenarios, namely the base case (or trend scenario) and the increased incidence of boat ownership scenario:

- Base case scenario – The base case scenario assumes that the incidence of boat ownership per 1,000 persons remains at the average level recorded between 2005 and 2009. The incidence of boat ownership is also kept constant throughout the projection period. This scenario is considered to be the most likely occurrence, based on recent trends and has therefore been included as the preferred scenario within this report.
- Increasing incidence of boat ownership scenario – The increasing incidence of boat ownership scenario assumes that the incidence of boat ownership per 1,000 persons continues to increase throughout the projection period, taking into account historical trends in the incidence of boat ownership. This scenario has been presented to take into account the findings of MSQ (2004), which highlighted that over 40% of recreational boat users surveyed were 55 years or over in age. As the proportion of persons aged 55 years and over increases throughout the projection period, it is anticipated that the incidence of boat ownership would also increase, ultimately impacting boat ramp lane demand. The outcomes of this scenario are included within the report contained in Appendix A.

Figure 7 outlines the methodology for preparing trailerable fleet projections.

[7] It is recognised that the incidence of trailerable boats in the SEQ North catchment utilising facilities in the SEQ South catchment is likely to be higher than for other catchments.

Figure 7 Methodology for preparing trailerable fleet projections



5.6.3 Historical population and boat registration

Analysis of the SEQ South RBC estimated resident population (ERP) and boat registrations between 2005 and 2009 indicates a clear relationship between the two variables. The report contained within Appendix A provides detailed tables in regards to ERP and boat registrations by type for each catchment between 2005 and 2009.

Boat ownership was significantly higher in the coastal RBCs, of which SEQ South is one, than inland RBCs.

Overall, the incidence of boat ownership per 1,000 persons has increased in Queensland between 2005 and 2009, with this reflected in SEQ South RBC as an average annual change of 1.2% (Table 13).

Table 13 Registrations per 1,000 persons - 2005-2009

RBC	2005	2006	2007	2008	2009	Average	Average annual change 2005-09
Sail boats							
SEQ South	1.37	1.38	1.40	1.43	1.37	1.39	0.2%
Boats without sails							
SEQ South	43.57	44.55	45.02	45.89	45.81	44.97	1.3%
All boats							
SEQ South	44.94	45.93	46.42	47.32	47.18	46.36	1.2%

Source: ABS (2010), MSQ (various years)

5.6.4 Population projections

The population projects for the SEQ South RBC rely on the latest edition of the PIFU medium series population projections.

All RBCs are anticipated to record positive population growth between 2010 and 2031, with the rate of population growth anticipated to be highest in the SEQ South RBC (2.4% per annum). The population projections for the SEQ South RBC in 5 year increments are detailed in Table 14.

Table 14 Population projections – 2010-2031

RBC	2010	2011	2016	2021	2026	2031	Average annual growth
SEQ South	1,193,271	1,218,202	1,394,019	1,579,602	1,771,029	1,966,300	2.4%

Source: PIFU (2009)

5.6.5 Projected total boat fleet

The projected fleet size in each catchment is estimated by applying the projected boat ownership ratio to the projected increase in population for the catchment area and then adding the projected growth in boat registrations to 2009 boat registrations.

Projections have not been undertaken for overseas based owners of boats registered in Queensland, as it has been assumed that these boats would be kept in marinas, hence having no impact on boat ramp demand. Furthermore, overseas boats account for only a marginal proportion of total boat registrations in Queensland[8].

[8] Boat registrations for overseas residents account for less than 0.01% of total boat registrations in Queensland.

For the base case scenario, it has been assumed that persons per boat registration remains constant at the average 2005 to 2009 level throughout the projection period.

Along with SEQ North, the SEQ South RBC is anticipated to have the highest number of boat registrations in Queensland. The rate of growth in boat registrations is projected to be highest in the SEQ South, Gladstone, Emerald and Mackay RBCs.

The boat registrations in the SEQ South RBC are projected to increase by 35,862 by 2031 (Table 15).

Table 15 Projected boat registrations by type – base case scenario 2010-2031

RBC	2010	2011	2016	2021	2026	2031
Estimated boats with sail						
SEQ South	1,641	1,676	1,920	2,179	2,445	2,717
Estimated boats without sail						
SEQ South	54,641	55,763	63,675	72,026	80,640	89,427
Total boats						
SEQ South	56,282	57,438	65,595	74,205	83,085	92,144

Source: Economic Associates estimates

5.6.6 Projected trailerable boats

To estimate the projected size of the trailerable boat fleet, the proportions as outlined in Table 16 have been applied to total fleet projections. It has been assumed that the incidence of boats requiring a boat ramp remains constant throughout the projection period. The incidence of boats requiring a boat ramp is based on the proportions presented in Table 11 and applied to the boat fleet of the RBC.

In all RBCs, a higher incidence of boats without sail would require a boat ramp than sail boats. The incidence of boats requiring a boat ramp in the SEQ South RBC (i.e. those not stored in a wet marina berth) is 89.7% (Table 16).

Table 16 Incidence of boats requiring a boat ramp

RBC	Boats with sail	Boats without sail	All boats
SEQ South	28.4%	91.5%	89.7%

For the base case scenario, between 2010 and 2031, the increase in boats requiring a boat ramp is projected to be 32,148 in the SEQ South RBC (Table 17).

Table 17 Projected boats requiring a boat ramp – base case scenario 2010-2031

RBC	2010	2011	2016	2021	2026	2031	Change
SEQ South	50,482	51,519	58,831	66,549	74,510	82,631	32,148

Source: Economic Associates estimates

5.7 Infrastructure demand assessment

5.7.1 Literature review

Behaviour of recreational boaters

The boating behaviour of recreational boaters was surveyed by the National Maritime Safety Committee in 2009. In relation to identifying peak periods, some key findings include:

- 95% of boaters use their boats in December and January. Only one third of boaters use their boats in June and July.
- Weekends are the most popular times for operating a boat with 70% of boaters operating their boat on Saturdays and 83% of boaters operating their boats on Sundays.
- Almost half of respondents use their boats between 6am and 10am.
- The most popular holiday period for operating a boat is Christmas/New Year with 73% of boaters operating during the holiday period. Easter is the next most popular holiday with 48% of boaters using their boats during the holiday.
- Almost 40% of boaters use their boats 2-3 times per month. 20% of boaters use their boats once a week.
- Almost half of respondents spend 3-5 hours on the water when they use their boats.

Levels of demand

Due to the varying levels of boat usage, it is considered that there are also varying levels of demand for facilities. On this basis, TMR recognises three levels of demand:

- Off-peak demand – the department expects off-peak demand to be met in almost all circumstances.
- Average demand – is taken to be demand for a facility on weekends (and for certain regional locations other busy periods).
- Peak demand – is demand for a facility at peak holiday periods and for special events.

TMR's program of works is aimed at satisfying average demand, where funds from recreational vessel registration fees allow.

Peak demand and capacity

The Perth Recreational Boating Facilities Study (Department for Planning and Infrastructure WA, 2009) and the Redland City study (Rose et. al., 2009) have identified the use of boat ramps during the peak usage period of public-holiday long-weekends through counts undertaken at boat ramps. The Perth study identified the total peak number of car/trailer units recorded at 32 public boat launching sites in January 2005 of 1,944 (Department for Planning and Infrastructure WA, 2009). Taking a percentage of the total 38,970 registered recreational boats (under 7.5 metres) in January 2005, a usage rate of 5% of Perth's public boat launching facilities on a peak boating day is derived.

While the Redland City study did not undertake this calculation directly, the study counted a total peak number of car/trailer units of 1,220 at 16 public boat ramps in May 2009 (Rose et. al., 2009). From the report, total boat registrations in May 2009 in Redlands were 10,551, giving a usage rate of 11.5%. However, boat registrations were not defined by the size of the vessel nor specific to May 2009.

A launching facility's ability to cope with peak demand can be affected by many factors including location and the number of ramp lanes available. Surveyed recreational boat users identify that they choose a particular ramp because it is either close to home (48%) or close to the destination (42%) (McNamara,1984).

Below are some key points regarding boat ramp capacity (Department of Harbours and Marine, 1980):

- Ramps are essentially used for 6.5 hours per day.
- The hourly launch or retrieval rate therefore is 15 boats per hour (based on an average launch or retrieval time of 4 minutes).
- Capacity is approximately 50 boats per lane per day.
- One boat ramp lane is required for every 250 registered trailer boats.
- Peak usage on an individual day is expected to be 20% of all registered trailer boats.

National Marine Safety Committee (2009) presented estimates of recreational boating usage in Australia during peak periods. Boat usage varied significantly, ranging between 2% of respondents during other public holidays and non-peak periods to 73% of respondents over the Christmas / New Year break (Table 18)

Table 18 Operating time by holiday period

Holiday	Proportion of respondents using boat
Christmas / New Year	73%
Easter	48%
School holidays	37%
Queen's Birthday	30%

Holiday	Proportion of respondents using boat
Labour Day	29%
Other public holidays / non-peak periods	2%

Off-peak demand

Off-peak demand has been estimated using the data presented in Table 18 above. Assumptions have been made regarding frequency of usage over holiday periods which extended over more than one weekend (i.e. Christmas / New Year, school holidays and other public holidays / non-peak periods) (Table 19).

Overall, it has been estimated that off-peak demand for recreational boating facilities on a weekend is 8%.

Table 19 Estimated demand on a weekend

Holiday	Usage	Weekends included	Times used per period	Usage / weekend
Xmas / New Year	73%	2	1.5	55%
Easter	48%	1	1	48%
School holidays	37%	12	5	15%
Queen's Birthday	30%	1	1	30%
Labour Day	29%	1	1	29%
Other public holidays / non-peak periods	2%	35	1.5	0%

MSQ does not cater for peak demand, such as holiday long weekends, Christmas and Easter periods or demand for boat ramps for special events like Brisbane's Riverfire. This is because funds, driven largely by collection of recreational boat registration fees, are stretched, making it difficult for state and local authorities to allocate sufficient funds for infrastructure for peak demand days. Land availability along the foreshore is also affects the State's ability to cater for peak demand as it is scarce and in intense demand for other uses.

5.7.2 Infrastructure demand

In order to determine the demand for recreational boating facilities, estimates have been made based on the literature detailed above for off-peak demand and peak demand on a single weekend throughout the year. Based on the above findings, three scenarios estimating boat ramp lane demand have been provided:

- Off-peak demand – 8% of boats demanding a boat lane on any given weekend.
- Average demand – 14% of boats demanding a boat lane on any given weekend.

- Peak demand – 20% of boats demanding a boat lane on any given weekend.

In Table 18 it was noted that on 35 of the 52 weekends, usage was estimated at 2% of the trailerable boat fleet. However, this figure is likely to be higher on certain weekends, for example when weather is particularly favourable, on other public holidays (e.g. show holiday), long weekends resulting from a pupil free day at their child's school, or consecutive 'leave' days.

The average demand scenario has been presented as a midpoint between the estimated off-peak demand on a typical two day weekend against peak demand (Table 20).

Table 20 Boats demanding a boat lane – off-peak, average and peak demand scenarios 2010-2031

RBC	2010	2011	2016	2021	2026	2031
Off-peak demand						
SEQ South	4,039	4,122	4,706	5,324	5,961	6,610
Average demand						
SEQ South	7,068	7,213	8,236	9,317	10,431	11,568
Peak demand						
SEQ South	10,096	10,304	11,766	13,310	14,902	16,526

Source: Economic Associates estimates

5.7.3 Boat ramp lane demand

Converting average demand estimates into boat ramp lane demand has been undertaken based on throughput rates of boat ramps. In SKM (1988) and Redland City Council (2009), a rate of 30 boats per lane per day is considered to provide unhampered overall amenity, whereas a rate of 50 boats per lane per day represents congested operations.

It has been assumed that the midpoint between unhampered overall amenity (30 boats per lane per day) and congested operations (50 boats per lane per day) would represent the ideal scenario, as it balances the needs and wants of trailerable boat owners against the costs incurred by local governments, state governments and the private sector in providing boat ramps. The results for the throughput rates of boat ramps for both scenarios are presented in the Economic Associates report (Appendix A).

Table 21 identifies the boat ramp lane demand for the off-peak, average and peak demand scenarios, between 2010 and 2031. The number of existing lanes in each RBC (both TMR and non–TMR) has been identified and the projected demand for boat ramp lanes to 2031 has been calculated based on a rate of 40 boats/lane/day for the base case scenario. The numbers identified in red indicate that the current number of boat ramp lanes does not meet demand.

Table 21 Boat lane demand – base case scenario 2010-2031

RBC	Existing number of lanes	2010	2011	2016	2021	2026	2031
Off-peak demand							
SEQ South	121	101	103	118	133	149	165
Average demand							
SEQ South	121	177	180	206	233	261	289
Peak demand							
SEQ South	121	252	258	294	333	373	413

TMR expects off-peak demand to be met in almost all circumstances. When providing boating facilities, TMR's program of works is aimed at satisfying average demand.

On this basis, the average demand scenario has been adopted for the purposes of this study as it will provide the most representative demand for the SEQ South Region.

5.7.4 Impact on boat lane demand – tides, pontoon and floating walkways

The recreational boating boat ramp demand forecasting has been prepared on the basis of each boat ramp having full capacity of 40 boats/lane/per day. To refine this demand calculation consideration needs to be given to whether a boat ramp is full or part time accessible, and if there is a pontoon or floating walkway to assist in improving the efficiency of the boat ramp.

For the purposes of this assessment a part tide boat ramp will be assigned 70% of the capacity of a full tide boat ramp, while the additional of a pontoon will increase the capacity of the facility by 50% of a boat ramp lane.

The location of the full and part tide boat ramps and the pontoons within the SEQ South Region are detailed in Table 22, along with the calculation of the impact of these on the total available boat ramp lanes.

Table 22 Tide accessibility and pontoons/floating walkways

RBC	Full tide lanes	Part tide lanes	Reduction in lanes for part tide	Pontoons /floating walkways	Additional lanes for pontoons/ floating walkways	Total lanes
SEQ South	95	28	-8	15	7.5	122.5

The demand forecasting based on the revised total number of boat ramp lanes, factoring in part tide accessibility and the provision on pontoons, is detailed in Table

23. The numbers identified in red indicate the instances where the current number of boat ramp lanes does not meet demand. This calculation of total lanes has been used in the RBC demand categorisation (Table 24).

Table 23 Demand incorporating tide accessibility and pontoons/floating walkways

RBC	Total lanes	2010	2011	2016	2021	2026	2031
Average demand scenario							
SEQ South	122.5	177	180	206	233	261	289

5.8 RBC demand

The recreational boating facilities demand assessment undertaken for the SEQ South Region has been as the basis of identification of those RBCs across Queensland that have the highest daily demand. The categorisation criteria for determining the low, medium and high demand RBCs are:

- Low demand RBC (green) – demand of 5 lanes or less.
- Medium demand RBC (yellow) – demand of between 5 and 15 lanes.
- High demand RBC (orange) – demand of 15 lanes or greater.

The boat ramp lane demand numbers are based on the existing lanes with the underlying assumption that no new lanes will be added to these catchments within the planning timeframe. If new or expanded facilities are provided the total lane demand numbers will reduce accordingly.

The SEQ South RBC is assessed as being a high demand catchment with a shortfall in the provision of boat ramp lanes currently existing and projected to continue with the study timeframe (Table 24).

Table 24 RBC demand categorisation – 40 boats/lane/day

RBC	Existing lanes	2010	Lane demand*	2016	Lane demand*	2021	Lane demand*
SEQ South	122.5	177	54	206	83	233	111

5.8.1 Limitations on projected demand

As identified in Table 24, there is a significant shortfall in the provision of boat ramp lanes in the SEQ South Region.

It is intended that the priorities recommended in this study will assist in achieving the projected lane demand for the SEQ South Region; however there are a number of

* Rounded down to the nearest whole number.

factors influencing the ability of delivery agencies to satisfy the projected future demand. These factors include:

- the availability of sites for the development of recreational boating facilities;
- suitability of sites for recreational boating facilities;
- funding arrangements;
- approvals;
- distribution of funding (state-wide equity); and
- ability of local governments to fund and maintain associated land based infrastructure.

Furthermore, the provision of additional lanes to improve access is constrained by the ability of the waterway to provide for the additional number of boats using it. Waterway congestion is therefore also considered to be a limiting factor in the provision of additional facilities. Waterway congestion also has the potential to result in impacts on the marine environment, water quality and user safety.

6. Identification of needs

6.1 Introduction

The process of prioritisation of the sites incorporates:

- the outcomes of the demand forecasting component of the project;
- the feedback gained through the consultation process; and
- the spatial analysis undertaken for each of the existing and new sites.

The process for determining priorities within for the SEQ South Region is depicted in Figure 8 and described in the following sections.

6.2 RBC demand

As detailed in section 5.8, the assessment of current and future boat ramp lane demand by RBC is based on the identification of high, medium and low demand catchments. The SEQ South RBC is identified as a high demand catchment Table 24.

6.3 Identification of potential sites – consultation process

To assist in the process of identification of priorities for the provision of recreational boating facilities in the SEQ South Region, the site specific information collected through the consultation process was collated. The feedback included that obtained from the community survey, thorough workshops, and information provided by key and other stakeholders.

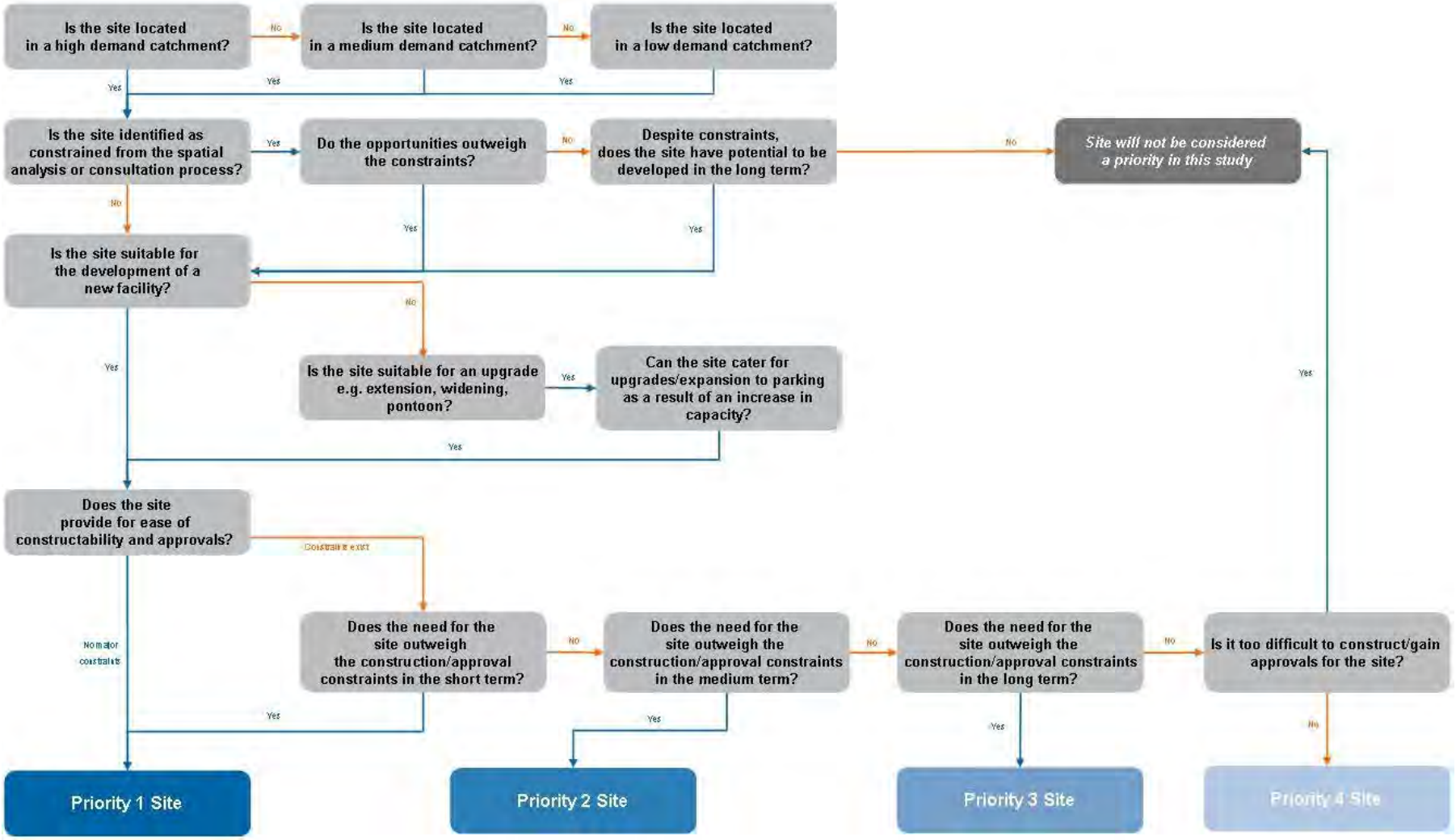
This information, along with the other information available for each of the facilities, was collated and potential new sites and priority sites identified. These sites then provided the targeted locations for the spatial analysis component of the project.

6.4 GIS multi criteria analysis

6.4.1 Introduction

GHD has applied a systematic and transparent approach to assess the suitability of the study area for the purpose of constructing boating facilities using a Multi-Criteria Analysis (MCA) methodology combined with desktop-based Geographic Information Systems (GIS) technology to undertake the analysis required by the project scope. This methodology is referred to as the Infrastructure Development Geospatial Options (INDEGO) method.

Figure 8 Prioritisation Process



6.4.2 Methodology

To assess the suitability of the study area, GHD adopted the INDEGO method. This process allowed the consideration of a variety of environmental, physical, social and built environment criteria while supporting a range of inputs from project stakeholders at the same time.

The INDEGO method provides an integrative approach by combining the constraints and opportunities identified in the natural and built environment combined with social and cultural heritage criteria. The results of this process produce a suitability surface where it is possible to observe the cumulative effects of constraints and opportunities in order to identify optimum locations for boating facility development. These constraints and opportunities were combined in order to develop the site suitability surface which formed the basis for the codification and prioritisation of sites.

Each site was assigned a priority score based on the summation of the suitability surface values within a 250m radius of a proposed site location. Following the codification of the site locations the planning team assessed the sites in the context of aerial imagery and in relation to the non-spatial factors that were identified during the course of the demand study. The spatial datasets utilised for the port location suitability assessment are sourced from TMR or DERM Holdings and from those currently licensed to, or acquired by GHD**.**

6.4.3 Deliverables

The primary goal of utilising a GIS based MCA for the Recreational Boating Facilities Demand Forecasting Project was to provide tabular and visual outputs to help prioritise development efforts while minimising potential impacts related to environmental constraints.

For this project, a 540,000 sq km study area was selected based on a 100km by 150km grid system, composed of 36 tiles and constructed around the distribution of existent boating infrastructure facilities.

A number of deliverables are generated during the process of performing an INDEGO analysis. Due to the size of the study area the constraints and suitability surface mapping was developed in an interactive digital mapping environment. All of the deliverables are an integral part of understanding the model outputs, verifying the accuracy of the results and producing a quality product that provides a rigorous information resource to support decision making processes.

6.4.4 Performance rating

The outcome of running INDEGO over a region of interest is a constraints map, which shows the overall suitability of land against specific selection criteria. Options that are most suitable against the selection criteria can then be considered in more detail through the integration of additional spatial data relating to those sites.

The performance rating reflects the importance of each criterion in siting the infrastructure and identifies a selection of themes that define opportunities to develop the recreational boating infrastructure in relation to existing infrastructure.

This is an important part of the process as poorly rated criteria have the potential to skew the model results. All attributes of a criterion within the "area of interest" are considered during the performance rating process. While past ratings can be used to inform the analysis team, each criterion requires a review in the context of the proposed infrastructure. The agreed performance ratings are recorded in a performance rating spreadsheet.

The standard rating schema established for the INDEGO model is grouped into five categories (highly unsuitable, highly constrained, moderately constrained, highly suitable and neutral (absence of constraints).

7. Determination of priorities

7.1 Introduction

The purpose of this study is to identify priorities for the provision of new recreation boating facilities or upgrade of existing facilities to cater for current and future demand.

A priority is defined as:

> *a site that is located in a high demand (or medium demand) catchment, having sufficient land available for the development/expansion of land based facilities, suitable water access and currently has high levels of use.*

Based on the results of the consultation, demand forecasting and GIS analysis, sites have been prioritised based on the criteria detailed in section 6.

7.2 Stakeholder priorities

As identified in section 6, the process for prioritisation of the sites combines the outcomes of the demand forecasting, the feedback gained from key stakeholders and the spatial analysis undertaken for existing and potential new sites.

The stakeholder priorities (section 4.6) identified during consultation phase of the project have been assessed as part of the prioritisation process. Table 25 provides an overview of the stakeholder priorities and the rationale behind their exclusion/inclusion as priorities for this study.

As a result of the assessment process, the development of upgrading potential of some of the sites identified through the consultation are not feasible for construction due to factors such as cost, approvals, land availability, demand, and inclusion on the current program.

Table 25 Stakeholder priorities

Locality	Stakeholder comments	Rationale
Weinam Creek, Redland Bay	◗ expand car park to service boat ramp demand ◗ disperse public use to other sites	Installation of pontoon at this location is included on the 2011-2014 BICM Program. Limited room for expansion.
Toondah Harbour, Cleveland	◗ expand car park to service boat ramp demand ◗ disperse public use to other sites ◗ increase boat ramp lane width	This boat ramp may be decommissioned as a recreational boating facility and used as a commercial barge facility. No additional investment is therefore proposed as part of this study.

Locality	Stakeholder comments	Rationale
William Street, Raby Bay	◗ expand car park to service boat ramp demand	Expansion to the existing car park has been identified as a priority.
Southern Moreton Bay Islands	◗ provide new boat ramps on larger islands and expand car parks ◗ increase lane widths at existing sites ◗ separate public and commercial use of boat ramps	An upgrade of the existing facility on Lamb Island has been identified as a priority for this study.
Gold Coast Broadwater	◗ upgrade existing boat ramps to provide extra capacity ◗ identify new sites for boat ramp and destination facilities	A new site has been identified as a priority at Marine Stadium to provide access to the Broadwater.
Southport	◗ monitor site near Southport Swimming Pool - potential for new/ relocated boat ramp	This site has potential for upgrade. However, further studies need to be undertaken to determine the opportunities for expansion/upgrade at this site.
Tallebudgera Creek	◗ upgrade existing boat ramp for increased capacity and user safety – additional lanes, parking	The boat ramps on Tallebudgera Creek are constrained as there is limited room for expansion of land based facilities and dredging is required to improve access.
Paradise Point	◗ upgrade boat ramp and land-based facilities	A new facility at Jabiru Island has been identified as a priority to cater for future demand at Paradise Point.
Northern Gold Coast	◗ investigate suitability of potential sites in Jacob's Well, Calypso Bay and Coomera Waters	New sites have been identified as priorities at Calypso Bay, Jacobs Well and Coomera Waters.

7.3 Recommended priorities

Suitable sites determined through the analysis process detailed in the previous sections are prioritised into:

- Priority 1 sites;
- Priority 2 sites;
- Priority 3 sites; and

- Priority 4 sites.

The prioritisation of sites is based on the potential of a site to cater for demand in the region. For example, Priority 1 sites are those which have the most potential to cater for demand, are of high importance to stakeholders and are in most cases, the least constrained. It is important to note that the priority allocation does not denote a timeframe for development. Priority 1 sites are considered highest in terms catering for demand. However, Priority 1 sites will not necessarily be developed first. Development of the priority sites will be determined by a number of factors such as funding, constructability, and approvals.

The recommendations included within this report incorporate existing TMR facilities only and new locations where the recreational boating infrastructure is likely to be funded by delivery agencies (in partnership with council and port authorities). Opportunities for the provision of new sites or upgrading of non-TMR facilities that fall outside this framework are addressed in section 7.9.

Feedback during consultation highlighted a significant shortage of boating facilities within the Gold Coast local government area. The SEQ South RBC has been identified as a high demand catchment, further highlighting the shortage of facilities in the shortage of facilities in the catchment as a whole. As a result, the priorities for the SEQ South region are focused on the Gold Coast where possible, to assist in catering for current and future shortages of facilities within the RBC.

The priorities for the SEQ South Region are summarised in Table 26.

Table 26 SEQ South Region priorities

Priority	Recommendations
Priority 1	Boat ramp Pacific Highway Oxenford - upgrade existing facility
	Boat ramp Marine Stadium – new facility
	Boat ramp Steiglitz Marine Precinct – new facility
	Boat ramp William Street - upgrade existing facility
	Boat ramp Jabiru Island - upgrade existing facility
Priority 2	Boat ramp Coomera Beattie Road – new facility
	Boat ramp Alberton - upgrade existing facility
	Boat ramp Lamb Island - upgrade existing facility
	Boat ramp Cabbage Tree Point - upgrade existing facility
	Boat ramp Thorneside Helen Street and Queens Esplanade - upgrade existing facility
	Boat ramp Calypso Bay – new facility

Priority	Recommendations
Priority 3	Boat ramp Anzac Park Broadwater – upgrade existing facility
	Boat ramp Ephraim Island Bridge – new facility
	Boat ramp The Spit Muriel Henchman Drive – upgrade existing facility
	Boat ramp Logan River Henderson Reserve – upgrade of existing facility
	Boat Ramp Coomera River Causeway – new facility
Priority 4	Boat ramp Behm Creek – new facility
	Boat ramp Boat Ramp Cecil Zipf Park – new facility
	Boat ramp Coleman Road Reserve – upgrade of existing facility

7.4 Demand following construction of priorities

The priorities identified above have been recommended to assist in achieving the projected lane demand for the SEQ South Region, as detailed in section 5.8.

Proposed works for each of the priorities include the construction of additional lanes, pontoons/floating walkways, and/or land based facilities. The construction of additional lanes and/or pontoon/floating walkways will increase the capacity of boat ramps and therefore contribute to a reduction in the demand for lanes across the region. Table 27 identifies the project lane demand prior to the construction of the priorities.

Table 28 identifies the projected lane demand following the construction of the priorities as follows:

- Existing lanes - the number of lanes available at that time e.g. existing lanes at 2016 includes the lanes constructed as part of the 2010-2014 BICM Program and the recommended Priority 1 sites.
- Lane requirements - the number of lanes required as forecasted in the demand analysis process.
- Lane demand – the difference between the number of existing lanes and lane requirements, being either a surplus or shortfall of boat ramp lanes.

7.5 Facilities for non-trailerable boat fleet

The focus of this study has been on the provision of recreational boating facilities that will provide for the majority of the recreational boating fleet, that being trailerable boats. Through the consultation process and the identification of priorities, consideration has also been given to the demands of the remainder of the fleet, in particular boats that are kept in the water and would use facilities such as landings and pontoon to access shore based facilities.

Within the SEQ South RBC, the demand of the trailerable boat fleet has been identified as being high with the focus of the priorities therefore being on the provision of facilities to cater for the current and projected future demand in the trailerable boat fleet.

Table 27 Boat lane demand prior to the construction of priorities

RBC	Existing lanes	2010	Lane demand*	2016	Lane demand*	2021	Lane demand*
SEQ South	122.5	177	54	206	83	233	111

Table 28 Boat lane demand following construction of priorities

RBC	Existing lanes at 2010	Lane requirements 2010 (forecast)	Lane demand 2010*	Existing lanes at 2016	Lane requirements 2016 (forecast)	Lane demand 2016*	Existing lanes at 2021	Lane requirements 2021 (forecast)	Lane demand 2021*
SEQ South	126	177	51	146	206	60	160	233	73

* Rounded down to the nearest whole number.

7.6 Priority 1 sites

The sites identified as Priority 1 for implementation include both upgrading of facilities at existing locations and the construction of new facilities. Table 29 to Table 36 provide details on the five Priority 1 sites including site characteristics, consultation feedback, proposed works rationale and indicative cost.

It is important to note that the works proposed are concept only and actual works undertaken will be dependent on detailed site assessments and available funding.

7.6.1 Indicative costs

The indicative capital costs provided for the Priority 1 sites are based on cost indices from Rawlinsons and rates from similar projects. No topographical survey, bathymetrical survey or geotechnical investigations have been carried out. The area required for car parking has been estimated from the attached drawings and lengths of ramps have been estimated assuming that they extend from Highest Astronomical Tide (HAT) to Lowest Astronomical Tide (LAT). The costs include allowances for design, construction preliminaries such as establishment on site and Client supervision. An allowance of 40% contingency has also been included.

Although the indicative costs used are deemed to be adequate for the purposes of comparison, GHD has no control over the cost of labour, materials, equipment or services furnished by others, neither has it control over contractors' methods for determining prices, competitive bidding or market conditions. The opinion of probable construction cost produced by GHD has been made on the basis of best judgement as an experienced and qualified engineering consultant familiar with the construction industry. As GHD is not a qualified Quantity Surveyor, nor does it employ quantity surveyors, GHD cannot and will not guarantee that any tenders or actual construction costs will not vary from this opinion of construction cost.

Table 29 Priority 1 site - boat ramp Oxenford

Site name	Boat ramp Pacific Highway Oxenford	
Asset number	20053481	
Location	Boat ramp Pacific Highway Oxenford GC28	
Full tide or part tide	Full tide	
Site characteristics	The Oxenford boat ramp is a two lane boat ramp located adjacent to the Pacific motorway on the south bank of the Coomera River. The ramp currently has parking for approximately 49 CTU's. There is a jetty and a boat shed for rowing adjacent to the boat ramp.	
Consultation feedback	According to Gold Coast City Council (2010), the river is popular with water skiers, jet skis and for fishing. The Regatta Waters lake is currently being built adjacent to the existing boat ramp. The lake is nearing completion and is for use non-motorised water craft. Council has indicated that there is likely to be some pressure on car parking near the boat ramp. However some additional spaces will be established for park users.	
Proposed works	◗ construction of an additional two lanes ◗ provision of a floating walkway/pontoon ◗ expansion of car park to accommodate CTUs ◗ the provision of supporting facilities including toilets washdown facility, and lighting. The indicative site layout is shown on Figure 9.	
Rationale	The Oxenford boat ramp is currently considered a regional scale facility providing users with access to the Coomera River for water skiing and fishing. Expansion to the car park is required to allow for an additional lane as well as relieve any potential pressure on parking as a result of the adjacent Regatta Waters lake development. The addition of a floating walkway/pontoon will make it easier for users to launch and retrieve and the overall capacity of the facility.	
Indicative cost (excluding GST)	Water based infrastructure	$420,000
	Land based infrastructure	$440,000

1:1,500 (at A4)

0 5 10 20 30 40

Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Cadastre Boundaries
- Turning Circle
- Existing Site Footprint
- Existing Parking (58 Lots)
- Proposed Site Footprint
- Proposed Parking (48 Lots)

Recreational Boating Facilities Demand Forecasting Study

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Indicative Site Plan
Priority 1 Site - Oxenford

Figure 9

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Data source: Imagery - Google Earth Pro (Date Extracted 25/02/2010); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Indicative Site Plan, Existing Site Footprint, Proposed Site Footprint/2010. Created by: MS, EA

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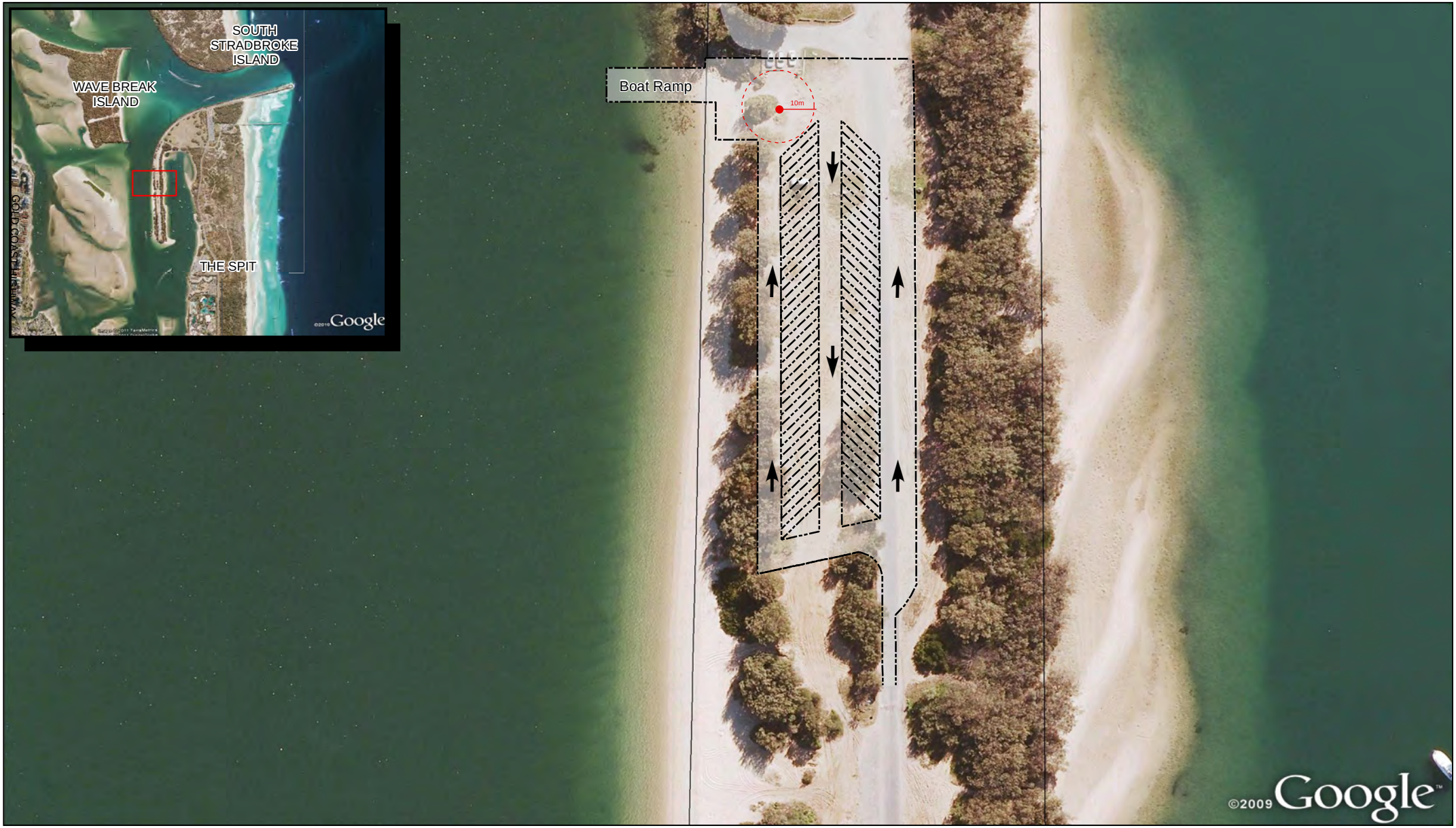
Table 30 Priority 1 site - boat ramp Marine Stadium

Site name	Boat ramp Marine Stadium (potential new site)	
Location	Near Doug Jennings Park off Seaworld Drive	
Full tide or part tide	TBC	
Site characteristics	This site is located south of Doug Jennings Park where there are two sandy access points at the northern extent of the marine stadium. The site is located on the western arm of marine stadium and has the potential to provide all tide access to the Broadwater.	
Consultation feedback	According to GCCC (2010), There may be an opportunity to establish permanent boat ramp infrastructure in this location and take advantage of nearby parking areas around Doug Jennings Park. This infrastructure would be of regional significance.	
Proposed works	◗ construction of a two lane boat ramp ◗ construction of car park for CTUs ◗ the provision of supporting facilities including toilets, washdown facility, and lighting. The indicative site layout is shown on Figure 10.	
Rationale	Stakeholders identified access to the Broadwater as a priority for the Gold Coast as demand is increasing rapidly in this area. Based on the findings of the constraints analysis and stakeholder feedback, it is considered that this site has potential for the development of a new boating facility as the site has very minimal constraints. However, further investigation will be required to determine any potential issues associated with a facility due to its location on the Broadwater e.g. boat wash, tidal movement, exposure to weather and boating traffic congestion.	
Indicative cost (excluding GST)	Water based infrastructure	$220,000
	Land based infrastructure	$1,310,000



1:1,500 (at A4)

0 5 10 20 30 40

Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Turning Circle
- Cadastre Boundaries
- Proposed Site Footprint
- Proposed Parking

Recreational Boating Facilities Demand Forecasting Study

Job Number	41-22459
Revision	B
Date	30 AUG 2011

Indicative Site Plan
Priority 1 Site - Marine Stadium

Figure 10

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Data source: Imagery - Google Earth Pro (Date Extracted 17/12/2010); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Indicative Site Plan, Existing Site Footprint, Proposed Site Footprint/2010. Created by: MS, EA

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Table 31 Priority 1 site - boat ramp Steiglitz Marine Precinct

Site name	Boat ramp Steiglitz Marine Precinct (potential new site)	
Location	North of Cabbage Tree Point Road	
Full tide or part tide	Full tide	
Site characteristics	A parcel of land located north of the existing Cabbage Tree Point boat ramp has been identified as a potential new site located north of the existing Cabbage Tree Point boat ramp. The land is currently owned by DERM however, GCCC has been offered to purchase the land (with the exception of the land surrounding the existing house.	
Consultation feedback	According to GCCC (2011), this land would be ideal for an ideal site for additional boat ramp lanes and associated facilities to relieve pressure off the popular Cabbage Tree Point boat ramp. Opportunity to provide a regional scale facility at this location.	
Proposed works	◗ construction of a four lane boat ramp ◗ provision of a floating walkway/pontoon ◗ construction of car park for CTUs ◗ the provision of supporting facilities including toilets, washdown facility, and lighting. The indicative site layout is shown on Figure 11.	
Rationale	A boat ramp at this location has been identified as a high priority for the Gold Coast area by GCCC. The site has been identified for the potential location of a regional scale recreational boating facility to service the Steiglitz precinct in accordance with the recommendations of the *North East Gold Coast Land Use, Economic and Infrastructure Strategy 2009.* It is recommended that feasibility study be undertaken to determine the scale and size of potential new facility at this location.	
Indicative cost (excluding GST)	Water based infrastructure	$2,635,572
	Land based infrastructure	$3,051,240

1:2,500 (at A4)

0 12.5 25 50 75 100

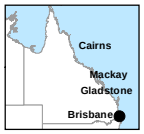
Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Cadastre Boundaries
- Turning Circle
- Existing Site Footprint
- Existing Parking (28 Lots)
- Proposed Site Footprint
- Proposed Parking (70 Lots)



Recreational Boating Facilities
Demand Forecasting Study

Job Number	41-22459
Revision	A
Date	31 AUG 2011

Indicative Site Plan
Priority 1 Site - Steiglitz Marine Project Figure 11

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Data source: Imagery - Google Earth Pro (Date Extracted 17/12/2010); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Indicative Site Plan, Existing Site Footprint, Proposed Site Footprint/2010. Created by: MS, EA

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Table 32 Priority 1 site - boat ramp Jabiru Island

Site name	Boat ramp Jabiru Island	
Location	Broadwater Avenue, Paradise Point	
Full tide or part tide	Full tide	
Site characteristics	Jabiru Island at Paradise Point has been identified as a potential new site for a boat ramp. The site is a disused Boral facility and is a State Government reserve. There is an existing single lane boat ramp in the adjoining Council park which also has a swimming enclosure.	
Consultation feedback	GCCC intends to redevelop this site as passive parkland and have identified that there is some opportunity for an additional boat ramp at this location. The site is important as a waterways maintenance access point. While there may be some opportunities for additional infrastructure at this location, it is important to note the mix of recreational uses and environmental values (GCCC, 2010).	
Proposed works	◗ construction of a two lane boat ramp ◗ car park with provision for CTUs ◗ provision of pontoon/floating walkway, if possible ◗ associated land based facilities including toilets and lighting. The site constraints are shown on Figure 12.	
Rationale	There is significant opportunity to provide a recreational boating facility at this location. However, there are environmental constraints (adjoining environmental park) that require consideration. In addition, GCCC have identified this site for future parkland and therefore consideration needs to be given to ability to balance both needs on this site. It is recommended that further discussions to be held with the Gold Coast Waterways Steering Committee to determine the opportunities development of this site.	
Indicative cost (excluding GST)	Water based infrastructure	$720,000
	Land based infrastructure	$1,920,000

1:1,500 (at A4)

0 7.5 15 30 45 60

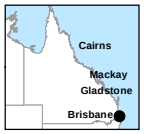
Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Cadastre Boundaries
- Turning Circle
- Existing Site Footprint
- Existing Parking (28 Lots)
- Proposed Site Footprint
- Proposed Parking (70 Lots)



Recreational Boating Facilities Demand Forecasting Study

Job Number	41-22459
Revision	A
Date	31 AUG 2011

Indicative Site Plan
Priority 1 Site - Jabiru Island

Figure 12

G:\41\22459\GIS\Maps\MXD\High Priority Sites\Indicative Site Plans\Final\41_22459_01_SEQ_South_HP_Site_08.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 17/12/2010); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Indicative Site Plan, Existing Site Footprint, Proposed Site Footprint/2010. Created by: MS, EA

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Table 33 Priority 1 site - boat ramp William Street, Cleveland

Site name	Boat ramp William Street	
Asset number	Eastern side of Raby Bay - William Street, Cleveland	
Location	Full tide	
Site characteristics	William Street boat ramp is a four lane structure located on the eastern side of Raby Bay. Land based facilities include water and lighting however there are no toilets or picnic areas. A new two lane boat ramp is proposed to be built adjacent to the existing boat ramp.	
Consultation feedback	Stakeholders are satisfied with the amount of parking at this boat ramp and the weather protection which is currently provided by a breakwater. Stakeholders identified the need for maintenance of the channel and basin dredging to improve water access. Feedback also suggested that an expansion of the boat ramp facility would improve the boat ramp capacity and improve the safety of users boarding from pontoons and boat ramps. The boat ramp also has potential to be widened in the long term.	
Proposed works	◗ new two lane boat ramp south of existing ramp ◗ provision of a pontoon/floating walkway ◗ expansion of car parking ◗ channel dredging ◗ provision of toilets. The indicative site layout is shown on Figure 13.	
Rationale	This boat ramp is a popular boat ramp well protected from the weather with ample car parking. To improve useability and increase capacity, a pontoon/floating walkway should be installed. In addition, with the development of the new facility adjacent to this boat ramp, an extension to the breakwater may be required. There is opportunity to expand this facility to include an additional two lanes in the long term to cater for future demand. Should the boat ramp be expanded, dredging will be required to widen the channel.	
Indicative cost (excluding GST)	Water based infrastructure	$760,000
	Land based infrastructure	$890,000

1:2,000 (at A4)

0 7.5 15 30 45 60

Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Cadastre Boundaries
- Turning Circle
- Existing Site Footprint
- Existing Parking (68 Lots)
- Proposed Site Footprint
- Existing Car Park (68 Lots)

Recreational Boating Facilities Demand Forecasting Study

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Date	31 AUG 2011

Indicative Site Plan
Priority 1 Site - William Street

Figure 13

G:\41\22459\GIS\Maps\MXD\High Priority Sites\Indicative Site Plans\Final\41_22459_01_SEQ_South_HP_Site_06.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 17/12/2010); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Indicative Site Plan, Existing Site Footprint, Proposed Site Footprint/2010. Created by: MS, EA

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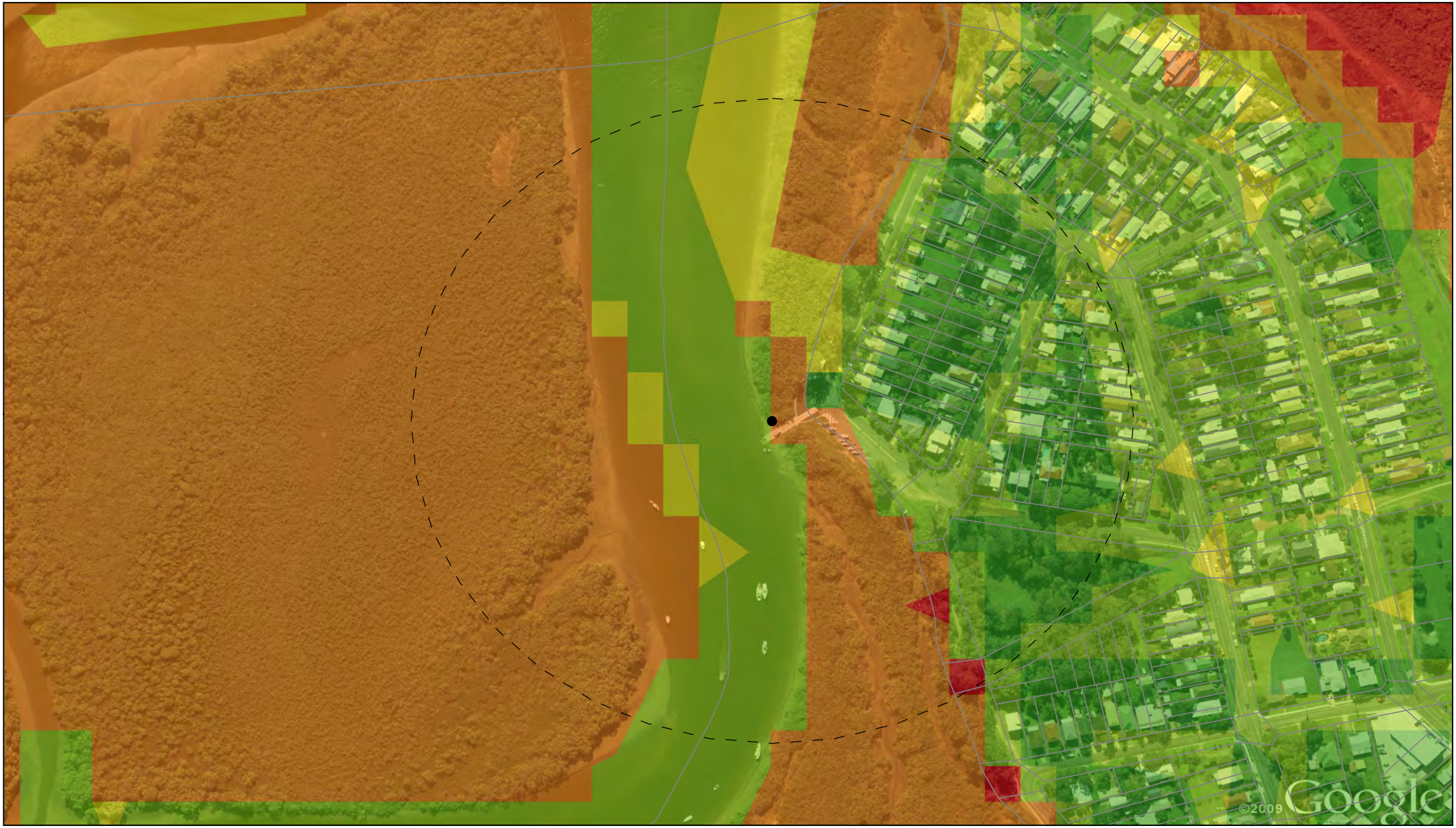
7.7 Priority 2 sites

The sites identified as Priority 2 for implementation include both upgrading of facilities at existing locations and the construction of new facilities. The sites are described in detail in Table 34 to Table 38.

Table 34 Priority 2 site - boat ramp Thorneside Helen Street

Site name	Boat ramp Thorneside Helen Street and Queens Esplanade
Location	Queens Esplanade - south bank of Tingalpa Creek
Asset number	20052795
Full tide or part tide	Full tide
Site characteristics	The Tingalpa Creek boat ramp has one lane and is located at the end of Helen Street and Queens Esplanade, and provides access to Tingalpa Creek. Supporting facilities at this site include water, lighting, toilets and picnic area. The boat ramp is tide restricted and is affected by cross currents with a steep drop at the end.
Consultation feedback	Feedback provided about this boat ramp indicated that the surface quality of the boat ramp is poor. The boat ramp is also tide affected with a drop off at the end of the boat ramp. The lack of mooring rings available was also raised by stakeholders as a concern at this facility. This boat ramp has been identified as a priority by Redland City Council (RCC).
Proposed works	◗ provision of additional lane ◗ provision of a pontoon/floating walkway (if further investigation identifies that this site is suitable for such a structure) ◗ extension of the car park (requires further investigation). The ramp has recently been resurfaced and extended and mooring rings have been installed. The indicative site layout is shown on Figure 14.
Rationale	This boat ramp has been identified as a priority by RCC but is considered a Priority 2 for the region due to expansion constraints and difficultly with constructability. This boat ramp has the potential to be upgraded after further investigation into expansion opportunities. Boat ramp rehabilitation works need to be undertaken in the short/medium term to improve usability.



1:4,000 (at A4)

0 20 40 80 120 160

Meters

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Site Location
- Cadastre
- Site Location Buffer (250m)

Suitability Surface

- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 6
- 6 - 10

Recreational Boating Facilities Demand Forecasting Study

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Site Constraints
Priority 2 Site - Thorneside

Figure 14

G:\41\22459\GIS\Maps\MXD\Medium Priority Sites\Final\41_22459_01_SEQ_South_MP_Site_08.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 17/12/2010); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Suitability Surface, Site Location, Site Location Buffer (250m)/2010. Created by: MS, EA

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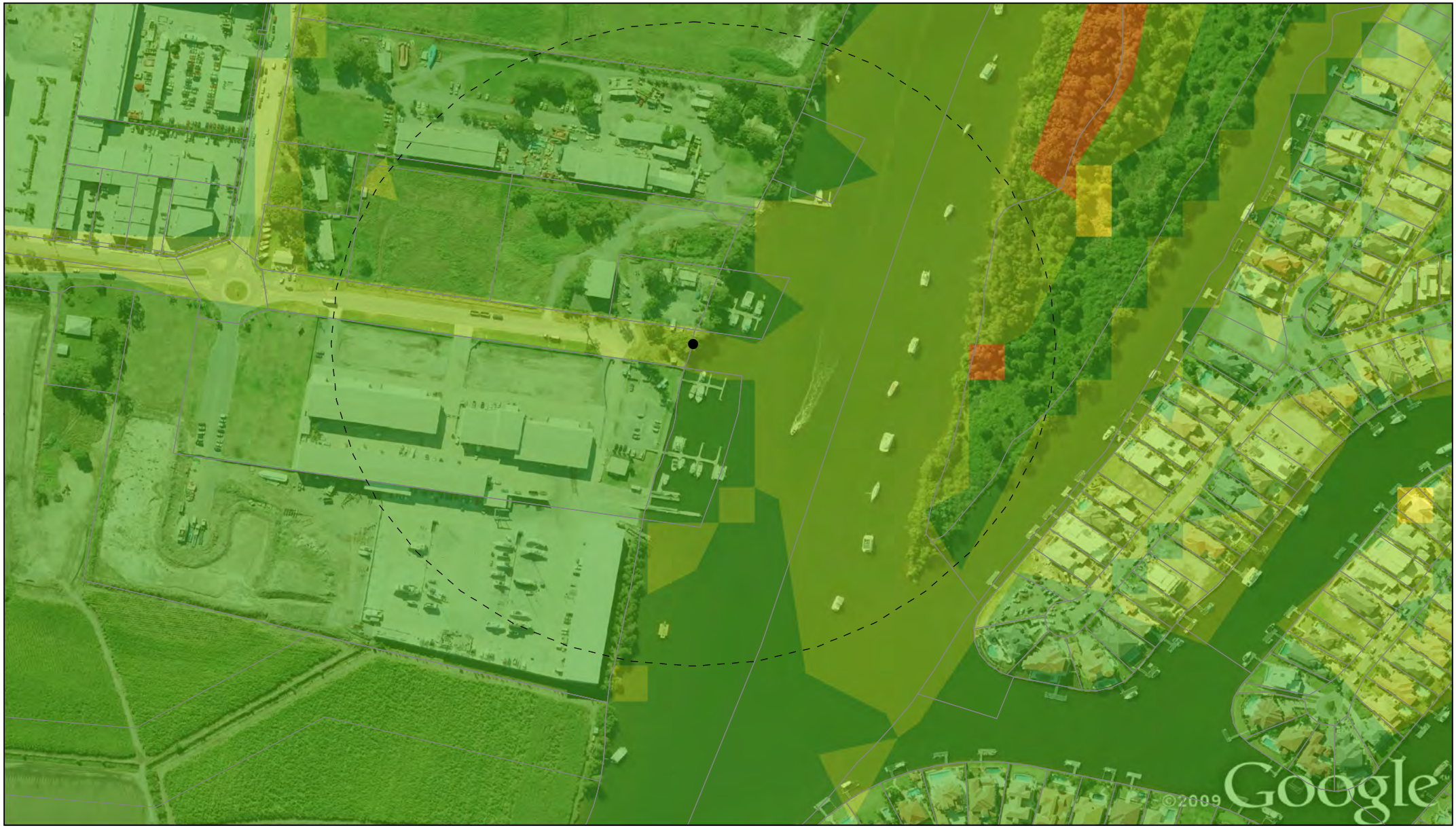
Table 35 Priority 2 site - boat ramp Beattie Road Coomera

Site name	Boat ramp Beattie Road Coomera (Planned Future)
Location	Beattie Road Future Regional Park
Full tide or part tide	TBC
Site characteristics	A site near the end of Beattie Road which has been identified for the development of Waterfront Parklands with the potential for a new boat ramp. A boat ramp at this location will provide users with access to the Coomera River. There are minimal constraints associated with the site.
Consultation feedback	GCCC (2010) have identified the opportunity to incorporate a regional scale boat ramp facility in the proposed Coomera River Parklands to provide community access and appreciation of the Coomera River. The facility would act to offset some of the expected pressure from the significant population growth anticipated in the Coomera region over the next 20 years. GCCC (2010) recommend that boat ramp infrastructure be considered in any detailed master planning for the parkland.
Proposed works	◗ construction of a two lane boat ramp ◗ construction of a car park to accommodate CTUs ◗ provision of land based facilities including lighting and toilet facilities. The site constraints are shown on Figure 15.
Rationale	This site has significant potential for a new facility as the site is relatively unconstrained. A boat ramp within the proposed parklands will provide the Coomera area with access to the Coomera River and will be complemented by the waterfront parklands. A facility in this location will service the Coomera area and cater for demand in the medium term.



1:4,000 (at A4)

0 40 80 120

Meters

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Site Location
- Cadastre
- Site Location Buffer (250m)

Suitability Surface

1 - 2	4 - 6
2 - 3	6 - 10
3 - 4	

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Demand Forecasting Study

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Site Constraints
Priority 2 Site - Beattie Coomera Rd

Figure 15

G:\41\22459\GIS\Maps\MXD\Medium Priority Sites\Final\41_22459_01_SEQ_South_MP_Site_01.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 17/12/2010); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Suitability Surface, Site Location, Site Location Buffer (250m)/2010. Created by: MS, EA

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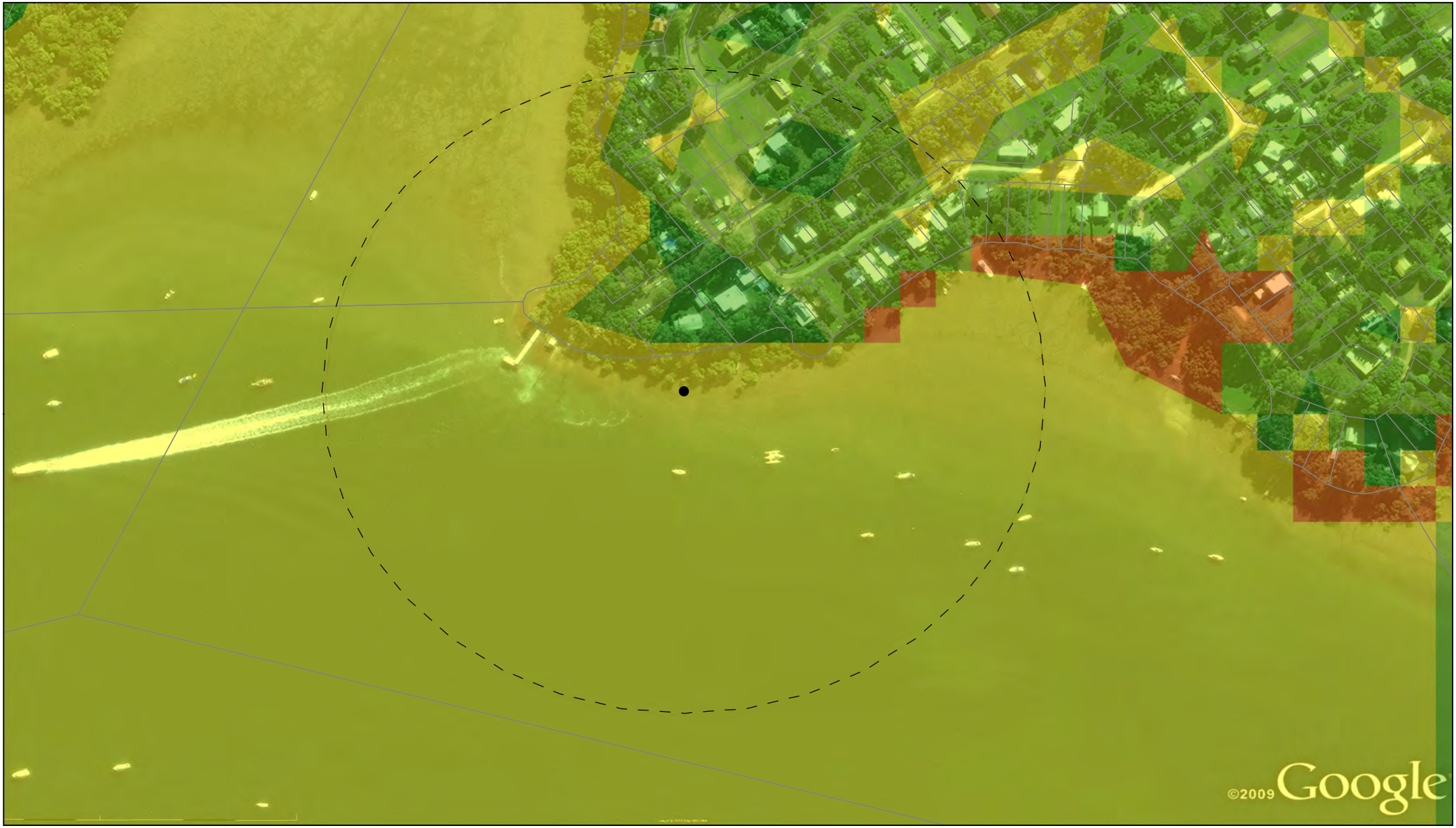
Table 36 Priority 2 site - boat ramp Lamb Island

Site name	Boat ramp Lamb Island
Location	South west side of Lamb Island - Lucas Drive
Asset number	N/A
Full tide or part tide	Full tide
Site characteristics	Lamb Island boat ramp is a single lane boat used for recreational boating and as a barge ramp. This facility has been identified as being in need of repair and is currently being designed by Redland City Council.
Consultation feedback	Stakeholders identified the need for the provision of a pontoon/floating walkway to improve launching and retrieving, and for use as a destination facility This boat ramp has been identified as a priority by Redland City Council (RCC).
Proposed works	◗ install floating walkway/pontoon ◗ provision of additional lane for recreational boat users ◗ construction of a car park to accommodate CTUs ◗ provision of land based facilities including lighting and toilet facilities. The site constraints are shown on Figure 16.
Rationale	This boat ramp has been identified as a priority by RCC Should a floating walkway/pontoon not be included in the design currently being developed by council, it is recommended that such a facility be provided as a Priority 2. There is opportunity to expand this facility and potentially separate commercial/recreational uses to cater for future demand.



1:4,000 (at A4)

0 20 40 80 120 160

Meters

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Site Location
- Cadastre
- Site Location Buffer (250m)

Suitability Surface

- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 6
- 6 - 10

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Revision A
Date 30 AUG 2011

Site Constraints
Priority 2 Site - Lamb Island

Figure 16

G:\41\22459\GIS\Maps\MXD\Medium Priority Sites\Final\41_22459_01_SEQ_South_MP_Site_02.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 15/06/2011); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Suitability Surface, Site Location, Site Location Buffer (250m)/2010. Created by: MS, EA

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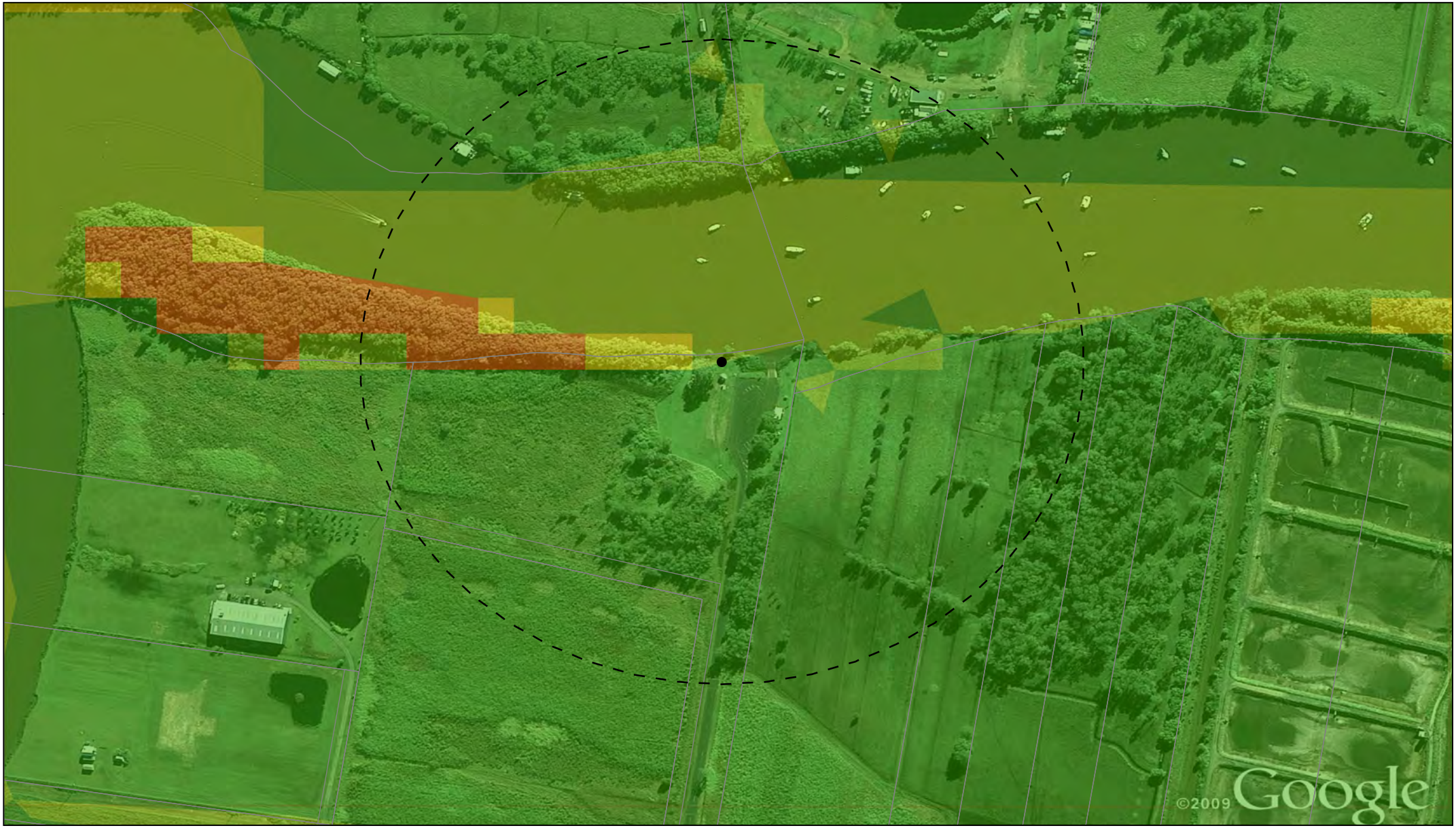
Table 37 Priority 2 site – Alberton Road

Site name	Boat ramp Alberton Alberton Road
Asset number	20053045
Location	South bank Logan River AB72
Full tide or part tide	Full tide
Site characteristics	The Alberton boat ramp is a single lane boat ramp located at the end of Alberton Road providing access to the Logan River. This boat ramp is supported by land based facilities including water, lighting, toilets and picnic areas.
Consultation feedback	GCCC have identified this facility as a local scale providing potential for upgrading to a regional scale facility.
Proposed works	◗ upgrading of facility to include an additional lane ◗ installation of a pontoon/floating walkway ◗ expansion of car park to include additional CTUs. The site constraints are shown on Figure 17.
Rationale	There is adequate land available surrounding the site with minimal constraints. This boat ramp has significant potential to be the primary facility providing access to the Logan River in the long term.



1:4,000 (at A4)

0 20 40 80 120 160

Meters

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Site Location
- Cadastre
- Site Location Buffer (250m)

Suitability Surface

- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 6
- 6 - 10

Recreational Boating Facilities Demand Forecasting Study

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Date	30 AUG 2011

Site Constraints
Priority 2 Site - Alberton

Figure 17

G:\41\22459\GIS\Maps\MXD\Medium Priority Sites\Final\41_22459_01_Southern_MP_Site_07.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 17/12/2010); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Suitability Surface, Site Location, Site Location Buffer (250m)/2010. Created by: MS, EA

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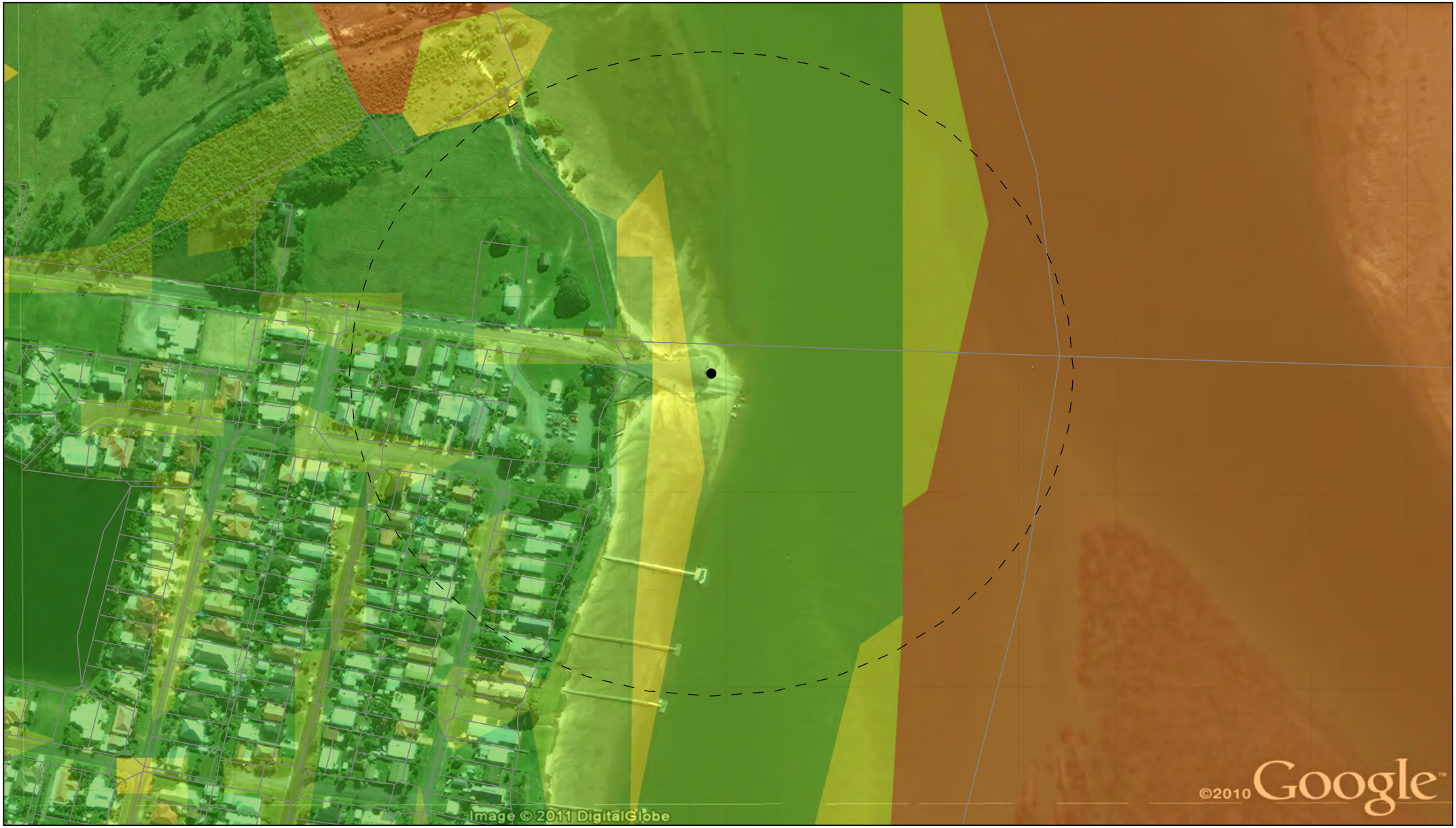
Table 38 Priority 2 site - boat ramp Cabbage Tree Point

Site name	Boat ramp Cabbage Tree Point
Location	off Charlie Hammel Park
Full tide or part tide	Full tide
Site characteristics	Cabbage Tree Point boat ramp is a three lane boat ramp located at the end of Cabbage Tree Point Road, adjacent to Charlie Hammel Park. The boat ramp has been reconstructed as part of the current program.
Consultation feedback	Stakeholders have identified that this facility could be further improved through the addition of more parking, and a pontoon/floating walkway. GCCC (2010) have identified that this boat ramp provides an opportunity for a regional scale facility and which would assist in relieving pressure at Jacobs Well.
Proposed works	◗ construction of additional lane(s) ◗ provision of a car park ◗ installation of a floating walkway/pontoon. The site constraints are shown on Figure 18.
Rationale	There are some parking issues in adjoining street, however the bowls club land could potentially provide a short term solution. Adjoining private land, to the north of Cabbage Tree Point Road, represents an opportunity to enhance the open space estate and marine access infrastructure. It is recommended that TMR investigate with GCCC land availability for additional car trailer parking at this location. The development of this site for a boating facility may cause conflict within the community as it will bring people into a residential area and increase traffic. However, the site has significant potential to cater for future demand and should be considered for development in the medium term.



1:4,000 (at A4)

0 20 40 80 120 160

Meters

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Site Location
- Cadastre
- Site Location Buffer (250m)

Suitability Surface

- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 6
- 6 - 10

Recreational Boating Facilities
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Site Constraints
Priority 2 Site - Cabbage Tree Point Figure 18

G:\41\22459\GIS\Maps\MXD\Medium Priority Sites\Final\41_22459_01_SEQ_South_MP_Site_03.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 01/09/2011); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Suitability Surface, Site Location, Site Location Buffer (250m)/2010. Created by: MS, EA

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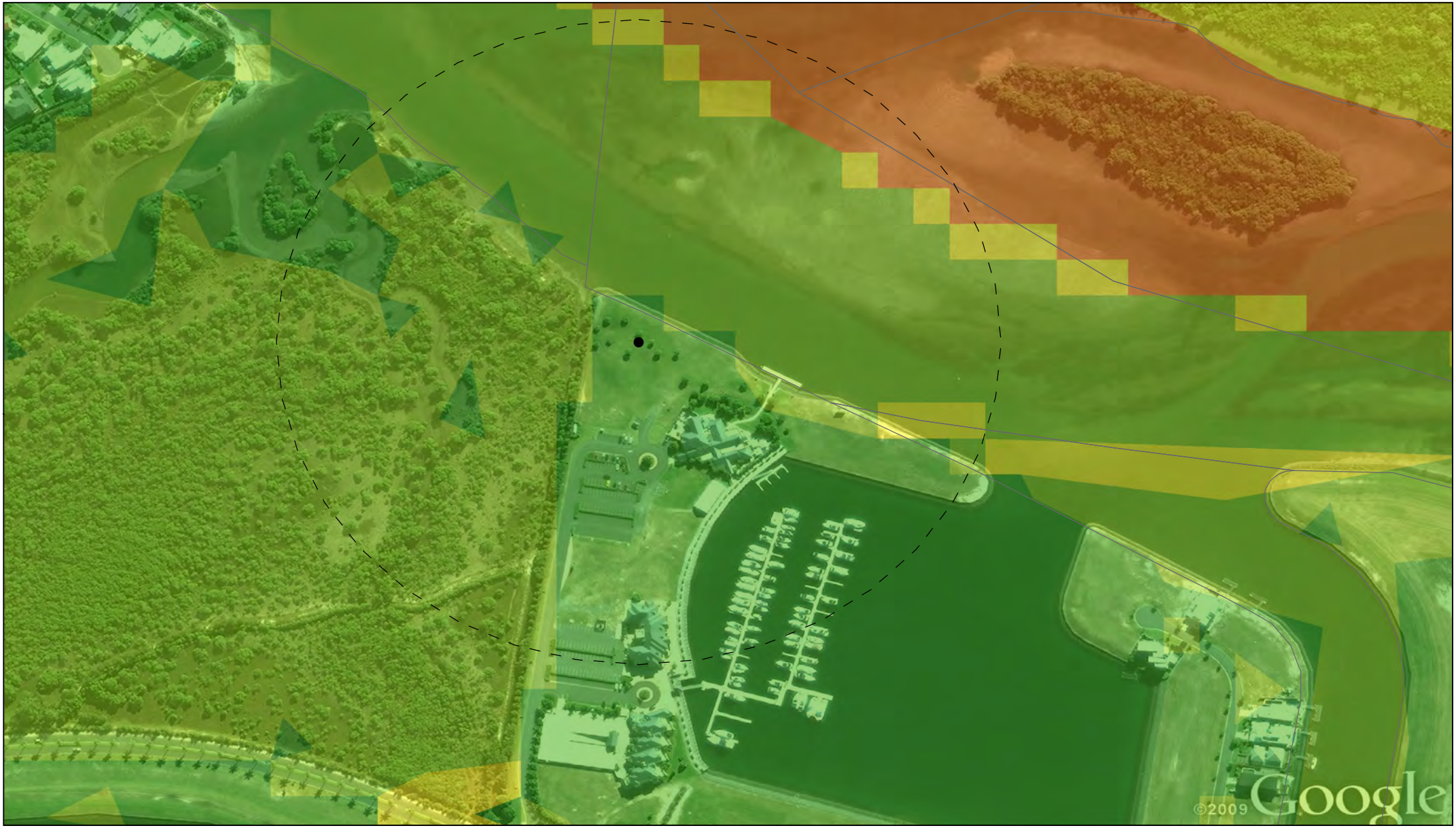
Table 39 Priority 2 site - boat ramp Calypso Bay

Site name	Boat ramp Calypso Bay (potential new site)
Location	End of Harrigans Lane
Full tide or part tide	Full tide
Site characteristics	Potential new site located at the end of Harrigans lane in Jacobs Well, adjacent to the Calypso Bay Marina Site provides access to Tipplers Passage, Jumpinin Bar and the Southern Moreton Bay islands the site is constrained by the future development of the Marina as the market/shopping precinct is proposed to be developed along Harrigans lane. This will restrict the size of a boat ramp at this location.
Consultation feedback	Calypso Bay has been identified as potential site for new boating facilities by GCCC. Feedback from stakeholders indicates that a boat ramp in this location will have deep water access and sufficient parking. Potential public access points have been identified either near the waterfront tavern or within parkland. There is currently an access point for waterways management purposes.
Proposed works	◗ construction of a two lane boat ramp ◗ provision of a floating walkway/pontoon ◗ expansion of car park for additional CTUs ◗ provision of supporting facilities including toilets, washdown facility, and lighting. The indicative site layout is shown on Figure 19.
Rationale	A boat ramp at this location has been identified as a high priority for the Gold Coast area by stakeholders. Development of a large scale facility (four lanes or more) is restricted by the Marina development. However, there is potential to construct a two lane boat ramp with supporting land based facilities in the parkland area along the waterfront. It is recommended that TMR consult with the Calypso Bay Marine and GCCC to determine suitable access and size of a new facility at this location.



1:4,000 (at A4)

0 40 80 120

Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Site Location
- Site Location Buffer (250m)
- Cadastre

Suitability Surface

1 - 2	4 - 6
2 - 3	6 - 10
3 - 4	

Recreational Boating Facilities Demand Forecasting Study

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Site Constraints
Priority 2 Site - Calypso Bay

Figure 19

G:\41\22459\GIS\Maps\MXD\Medium Priority Sites\Final\41_22459_01_SEQ_South_MP_Site_07.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 15/08/2011); GA: Placenames, Seas/2007; DERM: Cadastre/2010; GHD: Suitability Surface, Site Location, Site Location Buffer (250m)/2010. Created by: MS, EA

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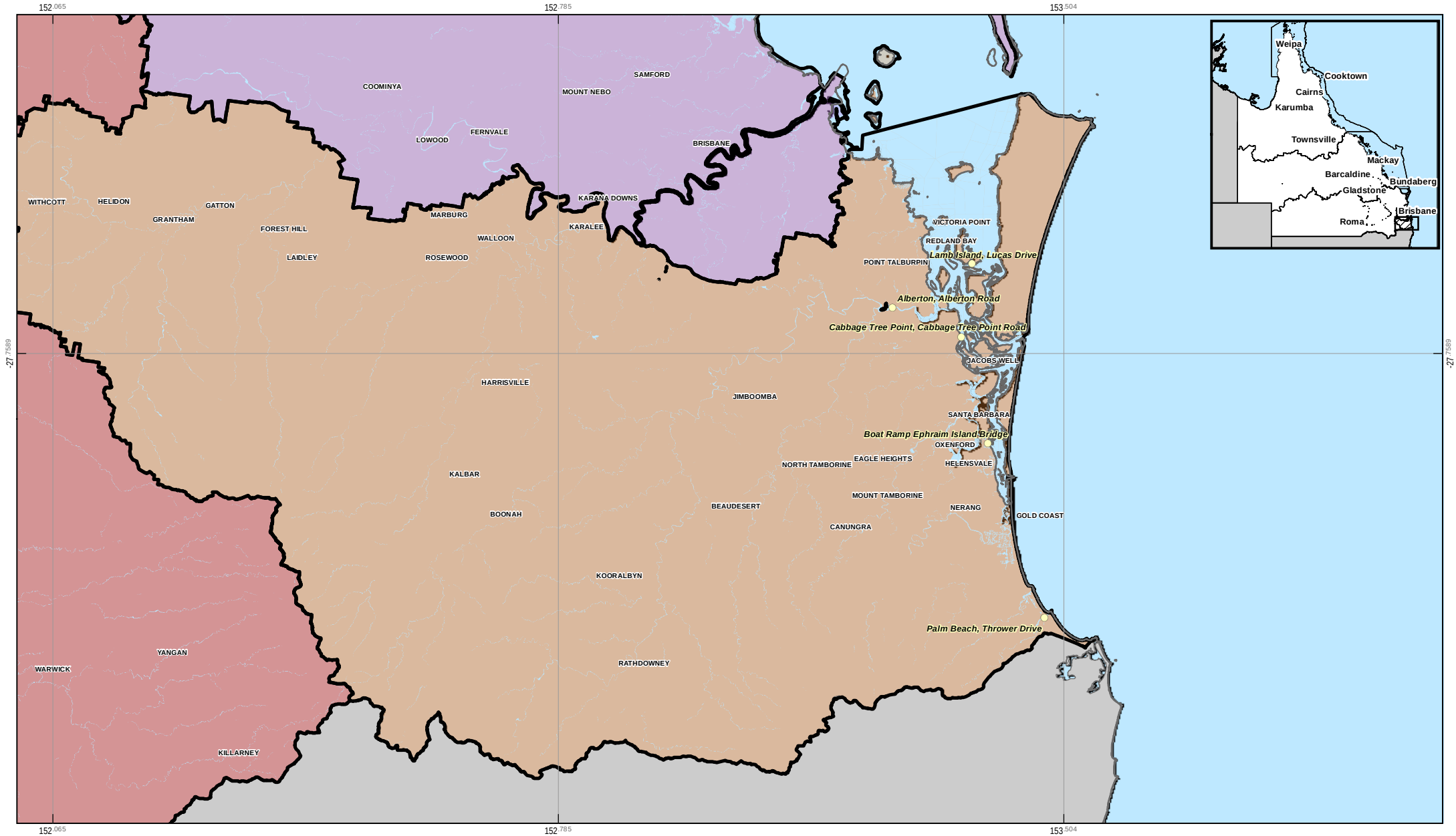
7.8 Priority 3 sites

The sites identified as Priority 3 for implementation include both upgrading of facilities at existing locations and the construction of new facilities. The Priority 3 sites for this region are detailed in Table 40 and the locations shown on Figure 20.

Table 40 Priority 3 sites

Asset number	Facility	Location	Full tide or part tide	Rationale
20052537 20052854	Boat ramp the Spit, Muriel Henchman Drive	Off Seaworld Drive both north and south ramps	Full tide	◗ Very popular boat ramps that experience significant traffic pressure on weekends. ◗ A pontoon has recently been installed to improve the capacity and operation of these facilities. ◗ There is potential to upgrade capacity of these ramps to include an additional lane on each ramp, and provide an extension to the car park on the land between Muriel Henchman Drive and Seaworld Drive. ◗ Strategic planning for this facility to be considered against the Gold Coast Marine Development Project and 'Tides of Change'.
20052533	Boat Ramp Logan Reserve	Henderson Street park, end of Henderson Street	Full tide	◗ Single lane ramp located at the end of Henderson Road. There is limited parking for this ramp and there is no land based infrastructure supporting this facility. ◗ Potential for the ramp to be widened and the car parking to be expanded and formalised ◗ Further investigation into the feasibility of this site is required to determine the extent of car parking required and reduce the need for encroachment on the nearby park.

Asset number	Facility	Location	Full tide or part tide	Rationale
20052762	Boat ramp Anzac Park Broadwater	The Broadwater - Southport (at swimming pool)		◗ Car trailer parking spill over is known to occur at this boat ramp into the general parkland car park. The existing car parking is below TMR standards for car parking ◗ The Southport Broadwater Parklands Masterplan promotes relocating the ramp and associated car parking to the northern end of the parkland.
N/A	Boat ramp Ephraim Island Bridge (potential new site)	South Main Foreshore	TBC	◗ Land adjacent to the Ephraim Island Bridge on the southern main foreshore has been identified as a potential new site to establish a single lane boat ramp. ◗ There is an existing jetty at the site with adjoining disused club house and car parking for approximately 40 cars. ◗ GCCC have identified the site to establish a new local boat ramp and upgrade the car park to allow for trailers. ◗ Further investigation into the feasibility of this site is required as car parking and encroachment on the nearby park are considered constraints for this site.
N/A	Boat ramp Coomera River Causeway (potential new site)	Coomera River Causeway parklands, Tamborine-Oxenford Road	TBC	◗ A parcel of land located off Tamborine-Oxenford Road has been identified for parkland purposes in the Coomera River Recreation Master Plan. However, in addition to the provision of parkland, this location has also been identified as a potential new site for a single lane boat ramp facility. ◗ A boat ramp at this location will relieve pressure off nearby ramps including the John Signato (Gawler Place) boat ramp and the Oxenford boat ramp. ◗ A feasibility study is required to determine the potential of a boat ramp facility at this location.



1:800,000 (at A4)

0 2.5 5 10 15 20

Kilometres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Priority 3 Sites
- TMR Region
- Drainage
- Central
- Northern
- SEQ - North
- SEQ - South
- Southern

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SEQ South Region Priority 3 Sites

Figure 20

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Data source: Boating Infrastructure, DTMR Region, DTMR, (2010) Populated Places Coastline, State, GA, (2007), Drainage, DERM, (2010). Created by: MS, EA, WW

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7.9 Priority 4 sites

The sites identified as Priority 4 for implementation include both upgrading of facilities at existing locations and the construction of new facilities. The Priority 4 sites for this region are detailed in Table 41.

Table 41 Priority 4 sites

Asset Number	Site	Location	Rationale
N/A	Boat ramp Behm Creek (potential new site)	Stapylton Jacobs Well Road	Potential future boat ramp location off Staplyton Jacobs Well Road on Behm Creek. Behm Creek is a natural waterway able to accommodate small to medium sized vessels with some shoaling at the confluence with the bay a potential waterway access difficulty (GCCC, 2010). Opportunity to investigate both private and public access facilities close to the weir/Stapylton Jacobs Well Road crossing.
N/A	Boat ramp Cecil Zipf Park	Cecil Zipf Road off Rocky Point Road	Located on an anabranch of Logan River, the site does not appear to be significantly silted on the outer bank of the river and there is room for a two lane ramp and car parking. According to GCCC (2010), a boat ramp at this site has the potential to be a local scale facility. However, detailed site investigations will need to be undertaken to establish the feasibility of a boat ramp at this location.
N/A	Boat Ramp Coleman Road	End of Coleman Road, McCoys Creek, Coomera	Existing single land boat ramp located at the end of Coleman Road, Coomera, has the potential to be upgraded to s 3 or 4 lane regional scale facility. Expansion of this facility will service the growing Coomera community. However, potential upgrades to this facility will be subject to a detailed site investigation.

7.10 Further recommendations

7.10.1 Dams

As part of the prioritisation process, a number of boat ramps on dams were identified as having opportunity for upgrade/expansion. The boat ramps located on dams in the region are predominantly owned and/or managed by Seqwater, and therefore have not been identified as priorities for this study. However, it is important to consider the potential upgrades/expansion of these boat ramps as they provide access to freshwater for fishing and recreational activities such as water skiing. These boat ramps also have the potential to capture some of the demand for the region.

Table 42 identifies the boat ramps on dams that have potential for upgrade/expansion. It is recommended that TMR coordinate with Seqwater to establish the needs for the region and establish upgrading opportunities to meet future demand.

Table 42 Upgrading opportunities – dams

Boat ramp	Location	Opportunities
Boat ramp Leslie Harrison Dam (potential new site)	Tingalpa Reservoir	The Leslie Harrison Dam has been identified to establish a new facility. There are currently no formal boat ramps providing access to the dam. However, RCC have identified the need for further investigation into the potential of establishing a boat ramp on this dam.
Boat ramp Lake Moogerah	Lake Moogerah Muller Park Southern	The Lake Moogerah Southern boat ramp is a two lane boat ramp located south of the Lake Moogerah Caravan Park. There is no formal parking provided for this boat ramp. The boat ramp is owned by Seqwater and is used predominantly by people staying at the caravan park. As demand increases, this site has the potential to be upgraded to include an additional lane.
Boat ramp Lake Moogerah	Lake Moogerah Muller Park Northern	The Lake Moogerah Northern boat ramp is a single lane boat ramp located south of the Lake Moogerah Caravan Park. There is no formal parking provided at this boat ramp. The boat ramp is owned by Seqwater and is used predominantly by people staying at the caravan park. As demand increases, this site has the potential to be upgraded to include an additional lane.

7.10.2 Decommissioning

Throughout this study, a number of boat ramps have been identified as unsuitable for continued use by key stakeholders and delivery agencies. Table 43 identifies the boat ramps in the region that have potential to be decommissioned.

Table 43 Potential decommissioning

Boat ramp	Location	Comments
Boat ramp Cleveland Point	Shore Street North, Cleveland Point	The boat ramp is exposed to weather, waves and cross currents and is severely tide restricted. It is located in close proximity to the William Street boat ramp which is a large facility providing protected access to the water with ample parking. Therefore, ongoing maintenance and use of this boat ramp is not feasible and it is recommended for decommissioning.
Boat ramp John Signato (Gawler Place)	Gawler Place, Upper Coomera	Discussions are taking place to determine the future of this facility. It is recommended that the facility be decommissioned as it has limited usage and ongoing maintenance is not feasible.

7.10.3 Further studies

Stakeholders identified the need for destination facilities as a priority in the SEQ South Region. Destination facilities provide users with the opportunity to access places from the water and may comprise pontoons where people can moor their boat for a period of time to allow them to collect supplies, go shopping/site seeing or pick up or set down passengers.

Stakeholders identified the Gold Coast Broadwater as an area that has significant potential to establish recreational boating facilities, in particular destination facilities. As a result, it is recommended that a further study be initiated with Gold Coast Waterways Steering Committee to identify and establish sites for recreational boating facilities (boat ramps and destination facilities) in the Gold Coast Broadwater.

7.10.4 Funding and coordination

A major issue that has been raised throughout the duration of this study is coordination between state and local government in terms decision making and funding for recreational boating facilities.

Feedback from local government has highlighted concerns regarding the funding land based facilities to support recreational boating facilities. Currently, the funding arrangement for recreational boating facilities relies on TMR funding for the water based infrastructure and Council funding for the land based facilities. This arrangement

is affecting the quality, operation and level of use of boating facilities as in some instances there is lack of available funding from local government to enable the provision of adequate land based facilities such as car parking, toilets, lighting, access roads, washdown and fish cleaning facilities.

Following discussions with delivery agencies throughout this study, it is recommended that they consider innovation in funding for the provision of land-side facilities. Such innovation is particularly needed by smaller delivery agencies to reduce the need for relatively high levels of capital input over short periods.

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Appendix A

Recreational Boating Facilities Demand Forecasting Study: Demand Analysis

Recreational Boating Facilities Demand Forecasting Study: Demand Analysis

Final Report

May 2011

ECONOMIC ASSOCIATES

Recreational Boating Facilities Demand Forecasting Study: Demand Analysis

Final Report

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1 INTRODUCTION

Recreational boating has experienced significant growth over the past twenty years with demand for boat ramps and associated facilities exceeding the capacity of existing infrastructure. In response to growing demand for recreational boating infrastructure, the Department of Transport and Main Roads commissioned GHD Pty Ltd, in association with Economic Associates Pty Ltd to undertake the Recreational Boating Demand Forecasting Project. Economic Associates Pty Ltd was engaged by GHD Pty Ltd to prepare recreational boating infrastructure demand projections, specifically for boat ramps.

This report:

- Provides a brief discussion of the recreational boating industry in Queensland;
- Defines a number of regional recreational boating catchments throughout Queensland;
- Provides a socio-economic overview of each of the identified regional recreational boating catchments;
- Provides recreational boating fleet projections relevant to the demand for boat ramps for each of the regional recreational boating catchments; and
- Provides boat ramp demand projections for each regional recreational boating catchment.

2 RECREATIONAL BOATING INDUSTRY OVERVIEW

Boat ownership is the most significant demand driver for marine infrastructure, namely boat ramps, marina berths (both wet and dry), moorings and pontoons. The composition of a region's boating fleet will determine the quantity and type of marine infrastructure demanded.

The recreational boating market refers to those boat owners who use their boat to take recreational day trips, cruising in relatively protected waters as opposed to the open sea.

Maritime Safety Queensland maintains detailed monthly statistics on boat registrations by local government area (LGA). Boat registrations data is collected for various vessel types and length. Available electronic records for boat registrations by length date back to 1999. Within the boat registration data sets, the various boat categories include:

- Sail boats;
- Boats without sails, including:
  - Motor boats without sails;
  - Speed boats; and
  - Jet Skis (or personal recreation vehicles).

Jetskis are not commonly found in marinas, and as such do not represent a major demand driver for marina berths, but can have significant implications for the demand for boat ramps.

Smaller boats can be easily towed on trailers. Industry consultations undertaken by Economic Associates previously reveal that the suitability for towing varies between boat types (i.e. boats with sails and boats without sails). For example, sail boats with keels become difficult to tow, especially if they do not have a retractable keel, at around five metres in length, whereas motorboats can generally be towed up to around eight metres.

Similarly, the suitability of vessels for dry storage depends on type and length of vessel. Dry storage is most suitable for vessels with shallow drafts. Therefore, dry storage is most suitable for smaller sail boats (i.e. sail boats up to eight metres) and boats without sails up to around ten metres.

Wet berthing a boat represents a much greater expense than trailing or dry berthing. Therefore, wet berths are generally used only by larger vessels, such as sail boats over five metres and boats without sails over eight metres.

2.1 Industry Size

The exact size and contribution of the recreational boating industry is not regularly assessed, however BIAQ (2003) estimated the overall size of the boating and related industries in Queensland as at June 2003[1]. This was undertaken through a self-completion questionnaire, with a total of 253 responses collected from BIAQ members. In 2002-03, there were an estimated 6,785 persons employed in boating and related industries in Queensland, with employment

[1] Related industries include boat charter, boat manufacturing, boat repair, chandlery, club or sailing school, finance and insurance, marine, marine brokerage, marine construction, marine electronics, marine engines, media, retail, supply of raw materials, trailer / accessories / other manufacturing and wholesale, distribution or import.

concentrated in boat manufacturing (2,365 employees), retail (845 employees) and other related manufacturing (840 employees). Employment in the industry increased by 4.5% between 2001 and 2003.

Turnover of the boating industry was estimated at $1,324 million in 2002/03, being highest for boat manufacturing ($269 million), wholesale, distribution and import ($235 million) and repair / chandlery ($167 million). Turnover in the industry was estimated to have increased by 10.5% since 2001.

The industry recorded high levels of turnover growth from overseas exports, almost doubling from $110 million in 2001 to $200 million in 2002-03.

The BIAQ survey highlights the significance of boating and related industries to the Queensland economy, and the importance of providing sufficient supporting marine infrastructure.

Recreational Boating & Industry-Gold Coast Cluster Case Example

The Gold Coast has built a reputation as a national and international producer of pleasure craft and as a place for storing, servicing and using these vessels. The Gold Coast marine cluster comprises over 400 businesses, employing an estimated 4,200 persons and generating $550 million annually in income (Department of State Development, 2006). In 2003, the Gold Coast Marine Precinct exported goods valued at more than $120 million to more than 30 countries (Gold Coast City Council, 2006). Estimates of exports attributable to the Gold Coast marine industry prepared in 2006 valued those exports at approximately $250 million per annum. However, Blackman and Hurd (2009) estimate that as a result of the global economic downturn in 2008-09, the Gold Coast marine industry cluster was estimated to contract by approximately 30%-35%. Blackman and Hurd (2009) estimated that the annual revenue of the Gold Coast marine industry in 2008-09 was $769.0 million, down approximately 22% from the previous year's estimate of $985.5 million. As at June 2009, employment within the Gold Coast marine industry was estimated at approximately 4,550 full time equivalent employees. While this estimate was down on the previous year's estimate, employment remained well above 2006 levels.

Based on this information, the Gold Coast is the currently one of the major centres for recreational boating activity in Queensland, and is a regionally significant economic and employment centre. Once again this highlights the significance of the marine industry at the state and regional levels and the importance of providing infrastructure to support its ongoing development.

2.2 Industry Characteristics & Trends

International Marina Consultants Pty Ltd (2006) undertook an overview of the changing characteristics within the recreational boating industry. The major trends noted in recreational boating are as follows:

- *The average size of recreational boats is increasing* – The average length has increased from about 10 metres to 13.5 metres over the last ten years. There is little demand for eight metre berths which can be found in some older marinas, with vessels of this size typically being towed. The report suggests the minimum marina size in most new marinas should be 12 metres. However, if the marina will mainly be occupied by power boats, the minimum marina size should be larger than 12 metres.

- *Boats are being used less frequently* – The number of boats being used at any one time has not increased at the same rate as the number of boat registrations. The damage to the marine environment as a result of the rapid rise in boat registration is likely to be less than anticipated.
- *Larger boats are being placed in rack and storage buildings* – Dry storage buildings are being designed in Australia and overseas to cater for boats up to 12 metres in length. Currently, the demand for dry storage in Australia is quite low. However, the demand for dry storage is expected to increase significantly as the price of marina berths increases in line with strong demand. There are a number of advantages associated with dry storage including potentially significant cost savings (in cases where reduced boat maintenance costs outweigh the additional costs of lifting boats in and out of the water), protection from UV damage and reduced need for dredging as the boats do not require water space for berths. However, racked dry storage creates a significant visual impact due to the size of the storage and as a result is unlikely to be included in association with residential development. Dry storage could be included in boat harbours and working marinas.
- *Marina sized boats which are used infrequently are parked on hardstands* – There has been a growing trend towards storage of power boats and yachts on hard stands due to lower usage and lack of available marina berths. The rates associated with hardstand storage are also less than for boats moored in a floating marina.
- *The growth in boat registrations is occurring throughout Queensland* – There has been significant growth in boat ownership in Queensland and thus demand for marina berths. Currently, virtually all marinas throughout Queensland are fully occupied indicating a need for additional berthing throughout the state.
- *Increasing demand for boat repair facilities* – There is an increasing demand for boat repair facilities as a result of an increase in the number of recreational boats and the reduced effectiveness of anti-fouling paints. Only a limited number of boat repair facilities are being constructed, with at least one existing facility at Hope Harbour expected to be shut down. Residential type marinas are not planned to include boat repair facilities.

The trends highlighted above indicate that the demand for marine infrastructure throughout the state is anticipated to grow significantly.

Industry consultations previously undertaken by Economic Associates reveal a growing number of new boats purchased in the growth category of motor boats between five and eight metres are manufactured in, or for, the North American market. These boats are generally half cabin cruiser, and appeal to the recreational boating market. Their appeal is largely based on favourable exchange rates which have resulting in these North American market vessels being around 30% less expensive than Australian made boats.

The growing popularity of North American market half cabin cruisers has significant implications for boat storage. In Queensland, the maximum width of a trailerable boat is 2.5 metres, but cruisers designed for the North American market are frequently wider than 2.5 metres, particularly those cruisers over five metres. As a result, the most appropriate storage solution for these boats is dry storage at a major marina or boat harbour. It is anticipate that as the popularity of these boats grows, so too will demand for dry boat storage.

2.3 Characteristics of Recreational Boat Owners

Maritime Safety Queensland (2004) conducted a boating survey in 2003 to gain an insight into the range, location of and investment in, recreational boating activities on Queensland waters.

There were 3,500 responses used in the survey analysis. The major findings of this analysis are as follows:

- The most common types of vessels operated by respondents were dinghies (45%) and speedboats (27%);
- The majority of respondents operated vessels with motors between 7 and 15 horsepower (20%), 16-50 horsepower (36%) or 51-100 horsepower (19%);
- Almost all respondents were male (95.5%) with 40% of all respondents being 55 years and over in age;
- The predominant boating activity is fishing (82.2% daytime, 24.9% overnight), with cruising also a popular recreational boat use (28.4%);
- The majority of boat owners launched their vessel either two to three times per month (40.5%) or every two to three months (31.5%);
- Estuaries, rivers and bays were nominated as the preferred location to operate their vessel; and
- A significant share of respondents (16%) travel more than 50 kilometres from their residential address to their preferred boat ramp / mooring site.

3 RECREATIONAL BOATING CATCHMENTS

3.1 Catchment Definition

Catchments for recreational boating infrastructure are typically influenced by:

- Road transport infrastructure to the facility;
- Natural and man-made barriers;
- The location and scale of existing facilities in the area; and
- Psychological barriers, such as driving time and perceptions of distance.

Consultation with BIAQ, marina operators and yacht clubs consistently indicates that the main catchment for major pieces of marine infrastructure generally corresponds with a one hour driving time from the infrastructure. This is supported by the survey results from Maritime Safety Queensland (2004) which indicates a significant share of boat owners travel over 50 kilometres to their preferred boat ramp / mooring. This is not to say that boat owners will not travel for more than an hour to access popular locations, however these would represent exceptions to normal practice and would include major events, special trips and boating holidays.

The recreational boating catchments were defined in conjunction with the Department of Transport & Main Roads, using former local government area boundaries and taking into consideration the five Main Roads regions in Queensland[2].

For the purposes of this study, sixteen recreational boating catchments have been defined, these being:

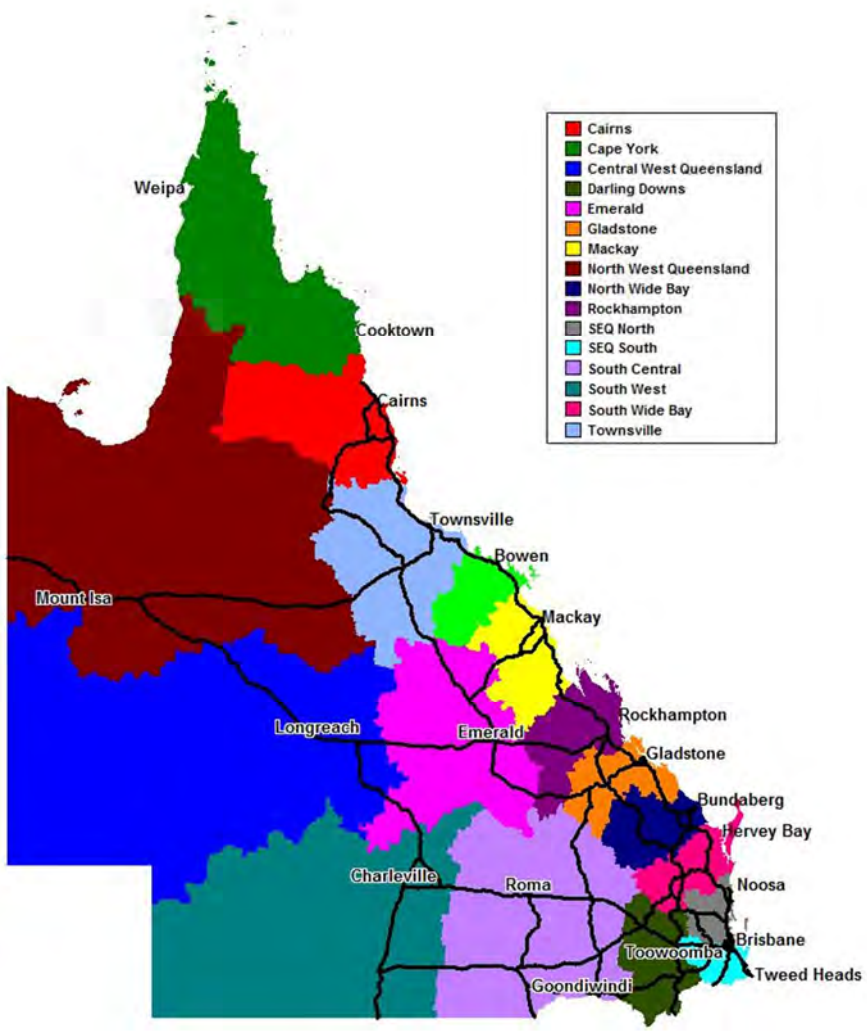
- *Cape York* – Aurukun, Cook and Torres LGAs;
- *North West QLD* – Burke, Carpentaria, Cloncurry, Croydon, McKinlay, Mount Isa, Richmond, Mornington, Etheridge and Flinders LGAs;
- *Cairns* – Atherton, Cairns, Cardwell, Douglas, Eacham, Herberton, Johnstone and Mareeba LGAs;
- *Townsville* – Burdekin, Dalrymple, Hinchinbrook, Thuringowa, Townsville and Charters Towers LGAs;
- *Central West QLD* – Aramac, Barcaldine, Barcoo, Blackall, Boulia, Diamantina, Ilfracombe, Isisford, Longreach and Winton LGAs;
- *Emerald* – Belyando, Jericho, Peak Downs, Bauhinia, Tambo and Emerald LGAs;
- *Mackay* – Broadsound, Mackay, Mirani, Nebo and Sarina LGAs;
- *Whitsunday* – Whitsunday and Bowen LGAs;
- *Gladstone* – Banana, Calliope, Miriam Vale and Gladstone LGAs;
- *Rockhampton* – Duaringa, Fitzroy, Livingstone, Mount Morgan and Rockhampton LGAs;

[2] It is recognised that boat owners may travel outside of their recreational boating catchment to access facilities, particularly in the case of residents in the SEQ North and SEQ South catchments, but discussions with the Department of Transport & Main Roads determined that the recreational boating catchments defined above were the most appropriate.

- *North Wide Bay* – Burnett, Eidsvold, Isis, Biggenden, Mundubbera, Gayndah, Kolan, Monto, Perry and Bundaberg LGAs;
- *South Wide Bay* – Cooloola, Hervey Bay, Kilkivan, Kingaroy, Maryborough, Murgon, Nanango, Tiaro, Wondai and Woocoo LGAs;
- *Darling Downs* – Cambooya, Clifton, Crow's Nest, Inglewood, Jondaryan, Millmerran, Pittsworth, Rosalie, Stanthorpe, Toowoomba, Wambo, Warwick and Dalby LGAs;
- *South Central* – Balonne, Bendemere, Booringa, Bungil, Chinchilla, Murilla, Tara, Taroom, Waggamba, Warroo, Roma and Goondiwindi LGAs;
- *SEQ North* – Brisbane, Caboolture, Caloundra, Esk, Kilcoy, Maroochy, Noosa, Pine Rivers and Redcliffe LGAs; and
- *SEQ South* – Beaudesert, Boonah, Laidley, Gatton, Gold Coast, Ipswich, Logan and Redland LGAs.

Figure 3.1 below provides a geographical representation of the recreational boating catchments in Queensland.

Figure 3.1: Recreational Boating Catchments in Queensland



3.2 Socio-Economic Profile of Catchments

A socio-economic profile of the recreational boating catchments as at the 1996, 2001 and 2006 Censuses of Population and Housing, benchmarked against Queensland is provided in Table 3.1 and Table 3.2. A number of key points can be drawn from this profile, these points being:

- In 2006, there were an estimated 3,973,960 persons living in Queensland including
  - 1,588,324 persons in SEQ North;
  - 1,031,517 persons in SEQ South;
  - 221,667 persons in Cairns;
  - 199,461 persons in Townsville;
  - 189,840 persons in Darling Downs;
  - 159,140 persons in South Wide Bay;
  - 113,045 persons in Mackay;
  - 110,209 persons in Rockhampton;
  - 94,488 persons in North Wide Bay;
  - 66,124 persons in Gladstone;
  - 40,325 person in South Central;
  - 35,699 persons in Emerald;
  - 35,657 persons in Whitsunday;
  - 34,910 persons in North West QLD;
  - 11,740 persons in Central West QLD;
  - 9,174 persons in Cape York; and
  - 8,611 persons in South West Central.
- Between 2001 and 2006, Cape York, North West QLD, Central West QLD and South West QLD experienced negative average annual population growth. The highest average annual population growth was recorded in Emerald, Mackay and South Wide Bay;
- At the time of the last Census Cape York, North West QLD, Emerald and Gladstone had a reasonably less mature population compared with Queensland, while Central West QLD, Whitsunday, North Wide Bay and South Wide Bay had a relatively more mature population;
- In 2006, the highest incidence of couple families with children was recorded in Emerald, Mackay and Gladstone. Single parent families were most prevalent in North Wide Bay, South Wide Bay and SEQ South;
- At the time of the last census, the incidence of fully owned households was highest in Central West QLD, North Wide Bay, South Wide Bay and South West QLD and lowest in Cape York and North West QLD;
- At the time of the 2006 Census, average weekly household incomes were highest in Emerald and North West QLD. The lowest income levels were recorded in North Wide Bay, South Wide Bay and South West QLD, with each of these catchments recording weekly household's income below $1000/week;

- In 2006, average monthly housing loan repayments and weekly rent payments were highest in SEQ North and SEQ South. Cairns and Whitsunday also recorded rents over $200/week;
- At the time of the 2006 Census, Central West QLD and Emerald recorded low unemployment rates while South Wide Bay and North Wide Bay experienced high unemployment rates;
- North Wide Bay, South Central and South West QLD recorded low proportions of residents with post-school qualifications, while SEQ North recorded a high proportion of residents with post-school qualifications. In 2006, Emerald and Gladstone recorded a high proportion of residents with a certificate;
- North West QLD, Emerald, Mackay and Gladstone, experienced a significantly low proportion of lower and upper white collar professions. North West QLD, Emerald and South West Queensland recorded a significantly high proportion of lower blue collar professions; and
- In 2006 there was a high proportion of persons (over 20%) employed in the agriculture, forestry and fishing industry in Central West SD, South Central. and South West Queensland. There was a also a high proportion of persons employed in the mining industry in North West QLD and Emerald.

Table 3.1: Socio-Economic Overview, Recreational Boating Catchments (Cape York to Whitsunday) and Queensland, 1996-2006

	Cape York			North West QLD			Cairns			Townsville			Central West QLD			Emerald			Mackay			Whitsunday			QLD		
	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006
Population	9,297	9,892	9,174	35,738	36,023	34,910	199,359	203,396	221,667	176,053	186,570	199,461	12,510	12,734	11,740	31,249	31,467	35,699	95,834	98,454	113,045	30,970	31,759	35,657	3,319,186	3,585,639	3,973,960
Ave. Annual Population Growth (%)	-	1.2%	-1.5%	-	0.2%	-0.6%	-	0.4%	1.7%	-	1.2%	1.3%	-	0.4%	-1.6%	-	0.1%	2.6%	-	0.5%	2.8%	-	0.5%	2.3%	-	1.6%	2.1%
Age Distribution																											
0-14 years	25.0%	23.9%	23.4%	24.0%	22.9%	21.4%	21.6%	21.6%	20.7%	22.8%	22.2%	21.3%	22.8%	21.3%	19.3%	26.0%	24.1%	21.9%	24.7%	23.2%	21.9%	19.3%	18.2%	16.3%	21.9%	21.3%	20.4%
15-24 years	14.7%	13.2%	11.6%	15.0%	13.1%	13.3%	13.5%	12.0%	11.5%	16.5%	15.4%	15.0%	12.6%	12.9%	11.5%	13.5%	12.8%	13.3%	13.6%	13.1%	12.8%	13.7%	11.9%	12.4%	14.8%	13.8%	13.6%
25-34 years	17.0%	14.4%	13.7%	19.0%	18.0%	16.1%	16.9%	14.7%	13.1%	15.8%	15.2%	13.6%	15.8%	14.1%	11.5%	17.9%	16.3%	16.8%	15.4%	13.9%	13.3%	16.8%	14.7%	14.1%	15.2%	14.2%	13.3%
35-44 years	15.7%	14.5%	13.7%	14.7%	15.5%	14.8%	16.0%	16.0%	15.3%	14.8%	14.8%	14.2%	14.1%	14.6%	13.3%	17.3%	16.6%	16.3%	16.3%	15.9%	15.8%	15.6%	15.7%	14.9%	15.0%	14.9%	14.6%
45-54 years	12.5%	15.0%	14.7%	12.5%	12.8%	13.3%	12.7%	14.0%	14.8%	11.8%	12.8%	13.4%	11.7%	13.0%	13.5%	12.5%	13.7%	14.0%	12.4%	13.9%	14.9%	13.4%	15.1%	15.2%	12.7%	13.7%	13.7%
55-64 years	8.2%	10.2%	13.2%	8.4%	10.1%	12.0%	8.7%	10.2%	12.4%	7.9%	9.0%	10.7%	10.1%	11.3%	14.3%	7.0%	9.2%	10.4%	8.1%	9.4%	10.7%	9.5%	11.8%	14.3%	8.4%	9.7%	11.4%
65+ years	7.0%	8.9%	9.7%	6.3%	7.6%	9.0%	10.6%	11.5%	12.2%	10.3%	10.6%	11.8%	12.9%	12.8%	16.6%	5.9%	7.4%	7.4%	9.5%	10.5%	10.6%	11.7%	12.7%	12.8%	12.0%	12.4%	13.0%
Average age (years)	32.3	34.6	35.9	32.2	33.8	35.4	35.2	36.5	37.9	34.0	35.0	36.3	35.9	36.9	40.1	31.6	33.6	34.4	33.8	35.3	36.3	36.4	38.4	39.6	35.5	36.6	37.6
Household Type (% of dwellings)																											
Couple families with children	27.5%	25.2%	22.5%	33.9%	30.6%	26.3%	30.2%	26.5%	25.1%	35.8%	32.6%	30.2%	35.0%	30.1%	25.1%	43.2%	36.2%	35.5%	38.5%	35.0%	33.9%	28.6%	23.6%	21.4%	33.7%	30.7%	29.4%
Couple families without children	16.3%	15.8%	17.0%	20.3%	20.1%	20.6%	23.6%	23.5%	24.4%	24.0%	24.9%	25.9%	21.3%	22.9%	23.2%	21.3%	22.8%	23.4%	24.6%	24.8%	26.4%	24.9%	24.0%	24.7%	25.0%	25.3%	26.0%
Single parent family	9.7%	10.1%	10.1%	9.4%	9.4%	9.0%	9.7%	10.5%	10.3%	9.8%	10.5%	10.6%	6.7%	7.0%	7.7%	5.2%	5.8%	5.5%	9.0%	10.0%	8.8%	7.2%	7.0%	6.6%	9.9%	10.8%	10.5%
Lone person households	20.5%	17.9%	21.1%	19.2%	19.8%	19.9%	20.1%	21.9%	21.4%	19.5%	20.7%	20.6%	23.0%	22.9%	23.9%	17.1%	18.6%	17.4%	18.6%	20.2%	18.0%	20.2%	19.7%	18.6%	20.6%	21.8%	21.0%
Average Household size	3.5	3.3	3.2	3.0	3.0	2.9	2.8	2.6	2.6	2.9	2.8	2.7	2.8	2.7	2.5	3.0	2.8	3.0	2.9	2.7	2.8	3.0	2.6	2.7	2.8	2.6	2.6
Household Finances																											
% of households fully owning home	26.6%	25.8%	25.6%	31.5%	31.4%	26.9%	35.6%	33.5%	28.4%	37.0%	34.6%	29.0%	45.8%	45.5%	42.3%	31.7%	35.2%	29.4%	38.6%	37.8%	31.3%	38.8%	38.1%	31.5%	38.7%	36.6%	30.4%
% of households purchasing home	6.5%	7.3%	9.9%	18.4%	18.9%	21.9%	19.9%	21.3%	27.2%	23.3%	25.8%	31.7%	12.5%	12.3%	17.4%	17.9%	17.5%	23.2%	21.0%	24.0%	30.6%	16.3%	17.1%	22.6%	24.8%	25.8%	31.4%
% of households renting	47.9%	44.6%	45.4%	41.2%	38.1%	35.9%	37.7%	36.2%	32.6%	34.9%	33.9%	31.8%	33.7%	33.2%	31.0%	45.7%	39.7%	38.7%	36.2%	32.5%	28.8%	35.3%	33.0%	30.7%	31.8%	31.6%	30.0%
Average weekly household income	-	$874	$1,027	-	$1,085	$1,450	-	$854	$1,104	-	$927	$1,208	-	$904	$1,020	-	$1,168	$1,672	-	$905	$1,356	-	$819	$1,110	-	$905	$1,202
Average weekly family income	$780	$1,175	$1,499	$1,152	$1,456	$1,740	$921	$1,114	$1,407	$957	$1,211	$1,537	$797	$1,196	$1,346	$1,308	$1,516	$1,950	$984	$1,164	$1,664	$845	$1,050	$1,433	$918	$1,175	$1,499
Average monthly housing loan repayment	$771	$782	$1,200	$829	$903	$1,231	$972	$1,025	$1,352	$832	$942	$1,321	$686	$901	$1,195	$690	$792	$1,484	$847	$953	$1,480	$820	$900	$1,364	$870	$977	$1,475
Average weekly rent payment	$82	$99	$119	$95	$114	$135	$139	$155	$207	$118	$141	$187	$69	$75	$98	$67	$92	$140	$100	$121	$189	$114	$154	$219	$130	$154	$218
Labour Market																											
Full-time employment (% labour force)	57.8%	51.4%	56.7%	69.9%	68.7%	71.6%	63.0%	59.2%	62.1%	63.5%	61.0%	64.0%	70.1%	69.8%	68.9%	71.5%	69.9%	71.7%	65.0%	61.4%	66.8%	64.7%	62.7%	65.6%	61.4%	58.9%	61.8%
Part-time employment (% labour force)	23.5%	26.7%	24.6%	17.6%	17.4%	16.4%	22.5%	25.1%	26.0%	22.6%	24.2%	24.7%	17.9%	18.3%	18.8%	18.1%	19.3%	19.0%	21.7%	24.0%	23.1%	20.1%	21.8%	22.9%	24.1%	26.3%	27.3%
Total employment (% labour force)	91.2%	92.3%	94.6%	93.9%	94.6%	96.6%	91.6%	92.1%	95.5%	91.3%	92.0%	95.5%	93.9%	96.2%	97.0%	95.5%	95.7%	97.8%	91.9%	92.0%	96.3%	91.4%	93.0%	96.4%	90.3%	91.7%	95.2%
Unemployment rate (% labour force)	8.8%	7.7%	5.4%	6.1%	5.4%	3.4%	8.4%	7.9%	4.5%	8.7%	8.0%	4.5%	6.1%	3.8%	3.0%	4.5%	4.3%	2.2%	8.1%	8.0%	3.7%	8.6%	7.0%	3.6%	9.7%	8.3%	4.8%
Participation rate (% of population > 15 years)	63.0%	61.8%	61.6%	72.8%	71.7%	69.6%	71.1%	70.7%	69.4%	71.0%	71.8%	72.3%	72.2%	76.1%	73.7%	75.2%	73.2%	74.5%	70.6%	69.9%	71.1%	72.8%	69.9%	67.8%	70.7%	70.5%	71.3%
Qualifications																											
% of persons with a post-school qualification	24.6%	27.8%	33.0%	27.3%	31.3%	33.5%	28.8%	32.6%	36.7%	26.4%	30.9%	35.5%	21.7%	25.8%	31.8%	27.5%	30.5%	36.0%	25.7%	29.1%	33.5%	28.1%	31.1%	34.2%	27.6%	32.3%	37.5%
% of persons with Bachelor or higher	6.5%	9.0%	9.5%	6.7%	7.8%	8.8%	7.5%	9.3%	11.0%	8.0%	9.7%	11.2%	5.8%	7.5%	8.5%	6.2%	7.6%	8.7%	5.6%	6.9%	8.0%	6.5%	7.2%	8.1%	8.6%	10.8%	13.1%
% of persons with Diploma	5.0%	4.8%	5.5%	4.0%	4.1%	4.3%	5.7%	5.6%	6.4%	4.7%	4.7%	0.0%	5.1%	4.6%	6.1%	4.6%	4.1%	0.0%	4.3%	4.0%	4.6%	5.3%	5.2%	5.8%	5.4%	5.5%	6.6%
% of persons with Certificate	13.2%	14.0%	17.9%	16.5%	19.4%	20.3%	15.6%	17.8%	19.3%	13.7%	16.6%	19.0%	10.7%	13.8%	17.2%	16.7%	18.9%	22.7%	15.8%	18.2%	20.9%	16.2%	18.8%	20.3%	13.6%	16.0%	17.8%
Occupation																											
Upper White Collar																											
Managers	12.3%	13.3%	14.6%	12.5%	13.4%	12.5%	15.5%	15.0%	14.1%	12.8%	12.4%	11.6%	24.2%	22.3%	21.5%	16.9%	18.2%	15.0%	13.8%	13.5%	11.7%	16.0%	15.8%	15.0%	13.3%	12.9%	12.4%
Professionals	15.4%	16.0%	17.7%	12.2%	12.0%	13.0%	13.2%	14.4%	15.1%	14.2%	14.7%	15.2%	11.3%	11.5%	11.8%	9.2%	10.4%	10.8%	11.7%	12.3%	12.2%	10.6%	11.6%	11.3%	15.3%	16.4%	17.2%
Subtotal	27.7%	29.4%	32.3%	24.7%	25.4%	25.5%	28.7%	29.4%	29.2%	27.0%	27.1%	26.8%	35.5%	33.8%	33.3%	26.0%	28.6%	25.8%	25.6%	25.9%	23.9%	26.5%	27.5%	26.3%	28.6%	29.3%	29.6%
Lower White Collar																											
Community & Personal Service Workers	9.2%	11.2%	11.8%	6.2%	7.0%	7.3%	9.5%	10.1%	10.5%	9.8%	11.3%	11.0%	7.1%	7.0%	9.0%	4.7%	5.4%	4.9%	6.0%	6.9%	6.7%	9.0%	8.7%	8.9%	8.1%	8.9%	9.1%
Clerical and Admin Workers	9.5%	11.0%	11.9%	10.3%	10.7%	10.2%	13.1%	13.2%	13.1%	14.7%	13.9%	14.0%	9.8%	9.3%	9.7%	9.5%	9.4%	9.6%	12.7%	12.3%	12.7%	10.5%	11.2%	10.6%	15.3%	15.0%	14.8%
Sales Workers	4.4%	4.9%	4.5%	5.7%	6.0%	5.5%	10.1%	10.7%	10.4%	9.4%	9.9%	9.5%	5.1%	4.9%	5.3%	5.7%	6.5%	6.3%	8.9%	9.7%	9.0%	8.0%	8.3%	9.2%	10.2%	10.7%	10.3%
Subtotal	23.2%	27.1%	28.2%	22.2%	23.6%	23.0%	32.7%	34.0%	34.0%	33.9%	35.1%	34.6%	22.0%	21.1%	24.1%	19.9%	21.3%	20.8%	27.7%	28.9%	28.4%	27.5%	28.2%	28.7%	33.6%	34.7%	34.2%
Upper Blue Collar																											
Technicians & Trades Workers	15.2%	13.6%	11.2%	19.9%	20.0%	19.4%	15.9%	14.7%	15.8%	15.7%	15.5%	16.4%	14.5%	15.6%	14.6%	18.6%	17.1%	20.6%	18.4%	17.5%	19.9%	14.9%	14.4%	16.3%	15.6%	14.7%	15.3%
Subtotal	15.2%	13.6%	11.2%	19.9%	20.0%	19.4%	15.9%	14.7%	15.8%	15.7%	15.5%	16.4%	14.5%	15.6%	14.6%	18.6%	17.1%	20.6%	18.4%	17.5%	19.9%	14.9%	14.4%	16.3%	15.6%	14.7%	15.3%
Lower Blue Collar																											
Machinery Operators & Drivers	9.7%	6.2%	5.8%	15.1%	14.9%	15.9%	7.7%	7.2%	6.4%	9.8%	9.6%	8.6%	8.6%	9.1%	8.3%	20.3%	18.1%	19.3%	13.7%	13.7%	13.8%	9.0%	8.9%	9.4%	8.3%	7.8%	7.2%
Labourers	20.4%	20.3%	19.0%	15.1%	13.9%	13.9%	12.4%	12.6%	12.8%	11.1%	10.8%	11.8%	17.1%	18.5%	17.5%	12.5%	13.2%	11.8%	12.0%	11.8%	12.3%	19.7%	18.8%	17.5%	11.4%	11.5%	11.9%
Subtotal	30.1%	26.5%	24.7%	30.3%	28.9%	29.8%	20.1%	19.8%	19.2%	20.9%	20.5%	20.4%	25.7%	27.5%	25.8%	32.9%	31.3%	31.2%	25.7%	25.5%	26.1%	28.7%	27.8%	26.9%	19.7%	19.3%	19.1%
Employment by Industry (% of employees)																											
Agriculture, forestry & fishing	7.0%	6.6%	9.6%	9.9%	10.3%	10.1%	8.9%	8.7%	5.9%	6.4%	6.0%	4.3%	27.9%	28.3%	23.4%	15.6%	18.5%	11.6%	9.5%	9.0%	5.3%	15.2%	15.0%	10.8%	5.2%	4.9%	3.4%
Mining	4.4%	2.1%	1.9%	23.7%	17.7%	23.0%	0.9%	0.5%	0.9%	1.8%	1.8%	2.6%	1.3%	3.7%	5.4%	25.4%	18.8%	24.8%	6.8%	6.5%	10.7%	2.1%	2.1%	3.2%	1.6%	1.2%	1.7%
Manufacturing	3.0%	2.5%	1.8%	4.1%	6.4%	5.1%	7.6%	7.5%	6.6%	9.3%	9.1%	9.0%	2.5%	3.6%	3.4%	2.5%	3.7%	3.9%	9.7%	9.0%	9.2%	8.7%	6.9%	6.4%	10.1%	10.5%	9.9%
Electricity, gas, water & waste services	0.5%	1.1%	0.8%	0.6%	1.2%	1.1%	0.7%	0.9%	1.0%	1.1%	1.1%	1.4%	0.9%	0.9%	1.0%	0.5%	0.7%	0.7%	0.9%	0.9%	0.9%	0.7%	0.9%	0.9%	0.9%	1.0%	1.0%
Construction	9.1%	6.7%	7.3%	7.3%	7.5%	6.1%	7.1%	6.3%	9.4%	6.2%	6.8%	9.1%	7.3%	7.8%	4.9%	7.2%	6.2%	9.3%	7.7%	6.9%	10.1%	5.1%	6.3%	10.8%	7.0%	6.9%	9.0%
Wholesale trade	1.6%	2.0%	0.9%	3.3%	3.5%	2.8%	4.2%	4.0%	3.1%	4.8%	4.1%	3.0%	3.5%	2.9%	3.0%	4.1%	4.9%	2.9%	5.9%	6.0%	4.4%	4.1%	4.1%	2.9%	5.3%	4.9%	3.9%
Retail trade	7.1%	7.5%	6.8%	6.9%	7.2%	7.2%	10.9%	12.4%	12.2%	10.4%	11.2%	11.0%	7.3%	7.6%	8.0%	6.9%	8.2%	7.9%	9.6%	11.3%	10.8%	9.4%	10.1%	11.1%	10.6%	11.5%	11.6%

	Cape York			North West QLD			Cairns			Townsville			Central West QLD			Emerald			Mackay			Whitsunday			QLD		
	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006
Accommodation & food services	7.5%	9.0%	8.4%	6.0%	6.5%	5.6%	11.2%	11.2%	10.0%	6.5%	6.7%	6.6%	6.1%	5.8%	6.4%	5.7%	5.6%	5.8%	6.9%	6.7%	6.6%	16.9%	15.2%	14.6%	7.2%	7.4%	7.0%
Transport, postal & warehousing	6.5%	5.0%	4.5%	5.1%	5.4%	4.7%	5.9%	6.1%	6.2%	4.8%	5.2%	4.8%	5.2%	4.6%	4.1%	4.4%	4.8%	3.9%	7.4%	6.5%	6.0%	7.0%	7.7%	6.7%	5.1%	5.2%	5.1%
Information media & telecommunications	1.0%	0.9%	1.3%	1.1%	0.6%	0.7%	1.4%	1.3%	1.0%	1.8%	1.7%	1.4%	1.1%	0.9%	0.8%	0.7%	0.6%	0.5%	1.6%	1.1%	0.8%	1.0%	0.9%	0.7%	2.1%	1.9%	1.4%
Financial & insurance services	0.8%	0.6%	0.3%	1.3%	1.0%	0.8%	2.2%	2.0%	2.0%	2.0%	1.8%	1.8%	1.7%	1.0%	0.9%	1.3%	1.3%	1.2%	2.3%	1.9%	1.7%	1.9%	1.8%	1.7%	3.0%	2.8%	2.9%
Rental, hiring & real estate services	0.8%	0.8%	0.9%	0.9%	1.3%	1.2%	2.1%	1.9%	2.1%	1.4%	1.4%	1.6%	0.5%	0.8%	0.4%	1.1%	1.1%	1.3%	1.5%	1.5%	1.7%	1.8%	1.9%	2.2%	2.0%	2.0%	2.1%
Professional, scientific & technical services	2.1%	2.2%	1.4%	2.2%	2.2%	1.6%	4.3%	4.1%	4.2%	4.2%	3.8%	4.1%	2.5%	2.0%	2.4%	2.7%	2.8%	2.8%	3.7%	4.0%	4.3%	2.8%	3.0%	3.7%	5.5%	5.4%	5.6%
Administrative & support services	2.1%	2.4%	1.8%	1.6%	2.8%	2.2%	3.5%	3.8%	3.6%	2.2%	2.8%	2.6%	1.4%	2.0%	1.4%	1.3%	2.0%	1.9%	1.8%	2.6%	2.3%	2.3%	2.9%	3.2%	2.7%	3.2%	3.0%
Public administration & safety	11.3%	22.6%	22.5%	7.2%	7.0%	8.0%	5.6%	5.8%	7.1%	10.3%	11.2%	10.9%	9.7%	7.9%	12.1%	4.0%	3.5%	4.4%	3.1%	3.4%	3.9%	3.3%	3.3%	3.5%	6.3%	6.2%	6.7%
Education & training	8.7%	9.6%	7.6%	5.9%	6.3%	6.5%	6.3%	7.2%	7.1%	8.4%	8.6%	8.1%	7.8%	7.1%	7.2%	5.9%	6.5%	5.8%	6.5%	7.1%	6.2%	4.9%	5.4%	4.7%	7.5%	8.0%	7.6%
Health care & social assistance	19.6%	9.4%	14.0%	6.3%	6.4%	7.3%	7.7%	8.5%	9.5%	9.1%	9.7%	10.7%	6.5%	6.9%	8.8%	4.0%	4.5%	4.5%	7.0%	7.7%	7.5%	5.4%	6.2%	6.2%	9.2%	9.5%	10.2%
Arts & recreation services	0.9%	1.2%	1.3%	0.9%	1.0%	0.5%	1.7%	1.7%	1.6%	2.1%	1.3%	1.1%	1.1%	1.2%	1.0%	0.5%	0.5%	0.3%	0.7%	0.8%	0.5%	1.0%	1.0%	0.9%	1.5%	1.5%	1.4%
Other services	2.4%	2.9%	1.6%	2.8%	3.5%	2.5%	4.1%	3.6%	3.7%	3.9%	3.7%	3.5%	2.4%	2.6%	2.5%	2.7%	3.5%	4.0%	4.2%	4.7%	4.4%	3.2%	3.2%	3.0%	4.3%	4.0%	3.7%

Source: Australian Bureau of Statistics (2007)

Table 3.2: Socio-Economic Overview, Recreational Boating Catchments (Gladstone to SEQ South) and Queensland, 1996-2006

	Gladstone			Rockhampton			North Wide Bay			South Wide Bay			Darling Downs			South Central			South West QLD			SEQ North			SEQ South			QLD		
	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006
Population	57,980	59,798	66,124	104,105	103,545	110,209	84,845	87,670	94,488	134,688	139,814	159,140	171,228	179,935	189,840	38,655	40,186	40,325	9,498	9,188	8,611	1,284,239	1,416,896	1,588,324	820,925	915,531	1,031,517	3,319,186	3,585,639	3,973,960
Ave. Annual Population Growth (%)	-	0.6%	2.0%	-	-0.1%	1.3%	-	0.7%	1.5%	-	0.7%	2.6%	-	1.0%	1.1%	-	0.8%	0.1%	-	-0.7%	-1.3%	-	2.0%	2.3%	-	2.2%	2.4%	-	1.6%	2.1%
Age Distribution																														
0-14 years	25.3%	24.4%	23.2%	23.3%	22.3%	21.5%	23.1%	21.7%	20.4%	22.7%	21.3%	20.1%	23.8%	22.9%	22.3%	24.9%	23.7%	22.6%	22.7%	21.8%	20.3%	20.0%	19.7%	19.2%	22.7%	22.1%	21.0%	21.9%	21.3%	20.4%
15-24 years	13.3%	12.7%	12.6%	15.5%	14.5%	14.0%	12.0%	11.4%	11.1%	11.4%	10.7%	10.3%	15.4%	14.5%	13.9%	11.5%	11.1%	11.0%	12.5%	11.7%	10.6%	15.5%	14.4%	14.3%	14.7%	13.8%	13.8%	14.8%	13.8%	13.6%
25-34 years	15.7%	13.7%	13.4%	14.3%	12.8%	11.9%	12.9%	11.1%	9.5%	12.0%	10.5%	9.5%	13.6%	12.9%	11.5%	15.7%	14.6%	12.7%	17.1%	14.8%	12.3%	15.3%	14.9%	14.1%	15.0%	13.9%	13.1%	15.2%	14.2%	13.3%
35-44 years	16.7%	16.7%	15.7%	14.7%	14.4%	13.9%	14.3%	14.0%	13.2%	14.3%	13.7%	12.7%	14.0%	14.1%	13.3%	15.0%	15.4%	14.8%	15.0%	15.4%	15.1%	14.8%	14.9%	14.8%	15.2%	15.0%	14.6%	15.0%	14.9%	14.6%
45-54 years	13.0%	14.0%	14.6%	11.7%	13.3%	14.0%	13.0%	13.7%	13.9%	13.1%	14.0%	14.0%	12.0%	13.0%	13.4%	12.8%	13.2%	13.8%	11.9%	12.9%	15.1%	12.8%	13.7%	13.5%	12.9%	13.9%	13.7%	12.7%	13.7%	13.7%
55-64 years	8.1%	9.6%	10.8%	8.6%	9.7%	11.1%	10.4%	12.2%	14.0%	11.0%	12.8%	14.9%	8.4%	9.5%	11.3%	9.7%	10.5%	12.0%	9.5%	11.2%	12.6%	8.3%	9.4%	11.0%	7.9%	9.5%	11.4%	8.4%	9.7%	11.4%
65+ years	7.8%	8.9%	9.6%	11.8%	13.0%	13.7%	14.2%	15.9%	18.0%	15.6%	16.9%	18.4%	12.7%	13.1%	14.3%	10.4%	11.5%	13.1%	11.3%	12.2%	14.0%	13.1%	12.9%	13.1%	11.5%	11.8%	12.5%	12.0%	12.4%	13.0%
Average age (years)	33.0	34.5	35.5	34.9	36.4	37.5	37.1	39.0	40.8	38.0	39.8	41.3	35.2	36.2	37.6	34.8	36.0	37.5	35.3	36.8	38.9	36.4	37.1	37.7	34.9	36.1	37.2	35.5	36.6	37.6
Household Type (% of dwellings)																														
Couple families with children	39.0%	35.7%	33.8%	34.3%	30.6%	28.9%	34.3%	29.7%	26.9%	32.7%	28.0%	26.9%	35.1%	32.8%	30.4%	37.5%	33.6%	30.3%	32.6%	29.2%	25.9%	32.1%	30.1%	29.3%	35.4%	32.0%	30.8%	33.7%	30.7%	29.4%
Couple families without children	24.7%	26.0%	26.8%	24.4%	25.0%	26.1%	29.9%	30.4%	31.9%	30.5%	31.5%	32.9%	26.0%	26.7%	28.3%	26.0%	26.5%	27.9%	22.5%	22.7%	24.1%	24.7%	25.4%	25.7%	25.2%	24.9%	25.5%	25.0%	25.3%	26.0%
Single parent family	8.2%	9.2%	8.8%	10.3%	11.3%	11.0%	10.7%	11.9%	12.2%	10.9%	12.1%	12.2%	9.2%	9.8%	10.1%	7.6%	7.5%	7.8%	9.4%	8.7%	7.7%	10.0%	10.6%	10.2%	10.8%	12.1%	11.7%	9.9%	10.8%	10.5%
Lone person households	17.5%	19.2%	18.8%	20.8%	22.8%	21.9%	21.7%	24.0%	23.4%	22.0%	23.8%	23.6%	22.3%	23.4%	23.2%	21.2%	22.3%	22.8%	22.1%	24.6%	26.7%	22.5%	23.3%	22.0%	18.3%	19.8%	19.2%	20.6%	21.8%	21.0%
Average Household size	2.8	2.7	2.7	2.8	2.7	2.7	2.7	2.6	2.5	2.7	2.5	2.5	2.8	2.7	2.6	2.7	2.7	2.6	2.9	2.7	2.6	2.7	2.6	2.6	2.8	2.7	2.7	2.8	2.6	2.6
Household Finances																														
% of households fully owning home	36.4%	36.7%	29.7%	40.6%	39.4%	33.3%	47.6%	44.7%	40.0%	47.7%	45.8%	41.1%	44.4%	41.6%	35.8%	47.0%	44.8%	37.2%	46.6%	45.4%	40.3%	39.6%	37.2%	30.1%	34.9%	33.3%	27.5%	38.7%	36.6%	30.4%
% of households purchasing home	29.4%	27.3%	34.6%	22.1%	24.2%	29.3%	21.0%	22.3%	26.4%	21.8%	22.0%	27.5%	22.8%	24.9%	30.5%	16.7%	16.8%	24.1%	14.5%	13.9%	19.8%	25.3%	26.7%	32.0%	29.3%	28.7%	34.5%	24.8%	25.8%	31.4%
% of households renting	33.0%	30.7%	28.4%	33.1%	30.9%	29.4%	26.7%	27.6%	25.9%	25.4%	26.0%	24.5%	28.9%	28.7%	27.7%	31.3%	31.6%	30.3%	33.4%	33.3%	30.6%	30.8%	31.0%	30.3%	30.9%	31.6%	29.2%	31.8%	31.6%	30.0%
Average weekly household income	-	$922	$1,326	-	$847	$1,129	-	$699	$898	-	$679	$881	-	$815	$1,035	-	$823	$1,049	-	$792	$922	-	$963	$1,288	-	$889	$1,177	-	$905	$1,202
Average weekly family income	$960	$1,234	$1,667	$867	$1,112	$1,441	$709	$881	$1,132	$665	$852	$1,102	$803	$1,055	$1,322	$715	$1,044	$1,334	$700	$1,058	$1,250	$991	$1,271	$1,601	$878	$1,135	$1,464	$918	$1,175	$1,499
Average monthly housing loan repayment	$801	$892	$1,325	$762	$815	$1,196	$683	$665	$1,066	$687	$738	$1,095	$737	$839	$1,188	$701	$811	$1,085	$544	$661	$791	$914	$1,053	$1,599	$890	$974	$1,522	$870	$977	$1,475
Average weekly rent payment	$103	$120	$170	$103	$120	$160	$102	$114	$159	$106	$120	$171	$105	$123	$164	$77	$86	$116	$65	$78	$82	$140	$169	$239	$147	$170	$245	$130	$154	$218
Labour Market																														
Full-time employment (% labour force)	65.8%	61.6%	66.1%	61.0%	58.4%	62.7%	57.5%	55.5%	57.1%	55.3%	53.8%	56.0%	63.9%	60.3%	62.2%	69.4%	67.4%	67.4%	70.1%	70.3%	69.5%	61.1%	58.8%	61.6%	59.7%	57.6%	60.9%	61.4%	58.9%	61.8%
Part-time employment (% labour force)	20.0%	23.6%	22.7%	23.8%	26.0%	25.9%	24.0%	27.2%	29.2%	24.1%	27.4%	29.7%	23.8%	26.7%	27.6%	19.3%	21.0%	23.1%	17.3%	17.4%	19.5%	25.1%	27.1%	28.3%	24.7%	27.0%	27.9%	24.1%	26.3%	27.3%
Total employment (% labour force)	90.7%	91.5%	95.3%	89.7%	91.2%	94.8%	86.0%	88.6%	92.5%	84.5%	88.0%	92.1%	92.2%	93.0%	95.3%	93.3%	94.7%	96.6%	92.7%	94.8%	96.5%	90.7%	92.0%	95.5%	89.0%	90.9%	94.8%	90.3%	91.7%	95.2%
Unemployment rate (% labour force)	9.3%	8.5%	4.7%	10.3%	8.8%	5.2%	14.0%	11.4%	7.5%	15.5%	12.0%	7.9%	7.8%	7.0%	4.7%	6.7%	5.3%	3.4%	7.3%	5.2%	3.5%	9.3%	8.0%	4.5%	11.0%	9.1%	5.2%	9.7%	8.3%	4.8%
Participation rate (% of population > 15 years)	71.4%	71.5%	72.9%	67.5%	68.3%	69.1%	66.5%	64.3%	65.1%	63.1%	61.4%	62.3%	68.7%	70.5%	71.9%	72.7%	74.4%	75.5%	73.2%	77.1%	75.0%	71.7%	71.9%	73.0%	70.8%	70.0%	70.9%	70.7%	70.5%	71.3%
Qualifications																														
% of persons with a post-school	26.9%	30.5%	35.0%	24.4%	27.3%	31.9%	21.7%	25.1%	29.8%	22.5%	26.1%	31.6%	23.3%	28.1%	33.8%	19.8%	24.1%	28.9%	20.8%	25.6%	30.0%	31.0%	36.6%	42.2%	26.0%	30.4%	35.4%	27.6%	32.3%	37.5%

	Gladstone			Rockhampton			North Wide Bay			South Wide Bay			Darling Downs			South Central			South West QLD			SEQ North			SEQ South			QLD		
	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006	1996	2001	2006
qualification																														
% of persons with Bachelor or higher	6.1%	7.4%	8.4%	6.9%	8.2%	9.6%	4.5%	5.9%	7.2%	4.6%	5.9%	6.9%	7.1%	9.0%	10.8%	5.3%	6.9%	7.8%	5.5%	7.0%	8.0%	12.1%	15.2%	18.4%	6.0%	7.7%	9.7%	8.6%	10.8%	13.1%
% of persons with Diploma	4.2%	4.1%	0.0%	4.5%	4.1%	0.0%	3.8%	3.8%	4.4%	4.4%	4.2%	5.2%	5.2%	4.8%	5.9%	4.6%	4.2%	4.9%	4.7%	4.2%	5.1%	6.2%	6.5%	7.7%	5.1%	5.4%	6.6%	5.4%	5.5%	6.6%
% of persons with Certificate	16.6%	18.9%	22.0%	13.0%	15.0%	17.6%	13.3%	15.5%	18.2%	13.4%	16.0%	19.5%	11.0%	14.3%	17.2%	9.9%	13.0%	16.3%	10.6%	14.3%	16.9%	12.7%	14.9%	16.1%	14.9%	17.3%	19.1%	13.6%	16.0%	17.8%
Occupation																														
Upper White Collar																														
Managers	14.2%	13.9%	12.0%	12.1%	11.3%	10.7%	17.2%	16.4%	14.7%	16.6%	15.6%	13.4%	17.7%	16.5%	14.8%	31.4%	30.0%	26.3%	23.6%	22.9%	22.3%	12.1%	11.8%	12.1%	11.9%	11.3%	11.3%	13.3%	12.9%	12.4%
Professionals	11.1%	11.7%	11.9%	14.2%	14.6%	14.8%	11.4%	12.1%	12.6%	12.4%	12.6%	12.8%	14.2%	14.6%	15.0%	9.4%	9.5%	10.0%	11.0%	10.9%	11.7%	19.6%	21.2%	22.3%	12.0%	12.8%	13.5%	15.3%	16.4%	17.2%
Subtotal	25.3%	25.6%	23.9%	26.3%	26.0%	25.4%	28.6%	28.5%	27.3%	28.9%	28.3%	26.2%	31.8%	31.1%	29.8%	40.9%	39.5%	36.4%	34.6%	33.8%	34.0%	31.7%	33.0%	34.4%	23.9%	24.2%	24.8%	28.6%	29.3%	29.6%
Lower White Collar																														
Community & Personal Service Workers	5.8%	6.8%	6.7%	8.9%	9.4%	9.2%	6.7%	8.1%	8.7%	8.1%	9.6%	10.2%	7.4%	8.3%	8.7%	6.2%	7.2%	7.2%	7.2%	7.7%	7.7%	8.0%	8.7%	8.9%	8.5%	9.2%	9.4%	8.1%	8.9%	9.1%
Clerical and Admin Workers	11.1%	11.4%	11.0%	14.1%	13.9%	13.7%	11.5%	11.8%	11.8%	12.3%	11.9%	12.5%	12.6%	12.7%	13.1%	9.7%	9.7%	9.7%	9.0%	8.6%	9.4%	17.5%	16.9%	16.2%	15.8%	15.7%	15.4%	15.3%	15.0%	14.8%
Sales Workers	7.4%	8.1%	7.8%	9.8%	10.0%	9.6%	9.4%	10.0%	10.2%	9.9%	10.5%	10.3%	9.2%	9.7%	9.6%	6.0%	6.2%	6.9%	5.1%	5.3%	5.5%	10.6%	11.1%	10.4%	11.7%	12.2%	11.6%	10.2%	10.7%	10.3%
Subtotal	24.3%	26.3%	25.5%	32.8%	33.3%	32.6%	27.6%	30.0%	30.7%	30.3%	32.1%	33.0%	29.1%	30.7%	31.4%	21.9%	23.1%	23.7%	21.3%	21.6%	22.6%	36.0%	36.7%	35.5%	36.0%	37.2%	36.3%	33.6%	34.7%	34.2%
Upper Blue Collar																														
Technicians & Trades Workers	21.3%	19.5%	20.8%	16.6%	15.7%	17.3%	14.5%	12.9%	14.0%	15.6%	14.4%	15.8%	14.6%	14.4%	14.9%	11.0%	11.0%	12.7%	14.9%	14.4%	13.3%	14.1%	13.3%	13.5%	17.4%	16.4%	16.9%	15.6%	14.7%	15.3%
Subtotal	21.3%	19.5%	20.8%	16.6%	15.7%	17.3%	14.5%	12.9%	14.0%	15.6%	14.4%	15.8%	14.6%	14.4%	14.9%	11.0%	11.0%	12.7%	14.9%	14.4%	13.3%	14.1%	13.3%	13.5%	17.4%	16.4%	16.9%	15.6%	14.7%	15.3%
Lower Blue Collar																														
Machinery Operators & Drivers	12.9%	13.2%	13.6%	9.5%	9.0%	9.5%	9.3%	8.5%	8.0%	8.8%	8.1%	7.8%	7.8%	7.5%	7.3%	9.1%	9.7%	9.3%	9.3%	8.6%	8.9%	6.7%	6.2%	5.4%	8.7%	8.2%	7.5%	8.3%	7.8%	7.2%
Labourers	13.5%	13.5%	14.2%	12.6%	14.0%	13.4%	17.2%	18.0%	18.2%	13.6%	14.8%	15.4%	14.1%	14.6%	15.2%	14.2%	14.5%	16.2%	17.5%	19.5%	19.4%	9.2%	9.0%	9.5%	11.4%	11.9%	12.5%	11.4%	11.5%	11.9%
Subtotal	26.4%	26.7%	27.8%	22.0%	23.0%	23.0%	26.5%	26.5%	26.2%	22.4%	23.0%	23.2%	21.9%	22.1%	22.4%	23.3%	24.1%	25.5%	26.8%	28.1%	28.3%	15.9%	15.2%	14.9%	20.1%	20.1%	20.1%	19.7%	19.3%	19.1%
Employment by Industry (% of employees)																														
Agriculture, forestry & fishing	8.5%	8.2%	5.5%	4.6%	4.7%	3.5%	18.8%	19.0%	14.7%	11.1%	10.8%	7.5%	12.9%	12.2%	9.7%	33.6%	32.8%	27.7%	26.5%	28.5%	22.2%	1.7%	1.6%	1.1%	2.1%	2.0%	1.4%	5.2%	4.9%	3.4%
Mining	4.5%	3.2%	5.3%	4.3%	3.5%	4.9%	0.3%	0.4%	0.7%	1.2%	0.9%	1.2%	0.4%	0.3%	0.8%	0.9%	1.2%	2.0%	3.8%	2.9%	4.8%	0.4%	0.4%	0.6%	0.5%	0.4%	0.4%	1.6%	1.2%	1.7%
Manufacturing	15.5%	16.4%	16.9%	8.1%	8.5%	8.2%	9.9%	10.1%	8.9%	10.8%	11.1%	10.5%	11.5%	11.1%	11.4%	3.6%	4.8%	4.8%	2.7%	4.1%	6.5%	9.9%	10.2%	9.2%	12.5%	13.1%	12.4%	10.1%	10.5%	9.9%
Electricity, gas, water & waste services	3.6%	2.9%	2.7%	1.7%	2.1%	2.3%	0.8%	0.9%	0.9%	1.6%	1.5%	1.8%	0.7%	0.9%	1.0%	0.7%	0.8%	1.0%	1.0%	0.8%	1.0%	0.7%	0.9%	1.0%	0.7%	0.8%	0.8%	0.9%	1.0%	1.0%
Construction	10.3%	8.1%	11.6%	5.9%	6.3%	8.8%	5.8%	5.3%	7.6%	6.7%	6.5%	9.5%	5.7%	6.1%	7.3%	4.8%	6.8%	8.2%	5.0%	6.7%	5.8%	6.5%	6.4%	8.1%	8.6%	8.4%	10.8%	7.0%	6.9%	9.0%
Wholesale trade	3.7%	4.9%	2.6%	4.3%	5.0%	3.4%	4.7%	4.9%	3.6%	4.1%	4.1%	2.7%	4.7%	5.2%	3.8%	4.8%	4.4%	2.8%	3.1%	4.3%	2.6%	5.6%	4.9%	4.1%	5.9%	5.4%	4.6%	5.3%	4.9%	3.9%
Retail trade	9.0%	10.3%	9.7%	11.3%	11.2%	11.2%	10.4%	12.0%	12.7%	11.4%	12.7%	12.7%	10.7%	11.5%	11.9%	8.7%	8.8%	10.0%	9.0%	7.9%	8.4%	10.4%	11.2%	11.4%	11.8%	12.7%	12.7%	10.6%	11.5%	11.6%
Accommodation & food services	5.5%	6.3%	6.3%	7.7%	8.1%	7.3%	5.9%	5.8%	6.3%	7.1%	7.3%	7.4%	5.4%	5.6%	5.5%	4.4%	4.9%	5.1%	5.1%	4.5%	4.9%	6.9%	7.0%	6.6%	7.3%	7.9%	7.2%	7.2%	7.4%	7.0%
Transport, postal & warehousing	7.2%	6.4%	6.3%	6.0%	6.5%	6.0%	3.8%	4.1%	3.6%	4.2%	4.4%	4.4%	4.5%	4.9%	4.6%	4.8%	4.5%	4.5%	6.5%	5.3%	5.2%	4.8%	5.0%	4.9%	5.0%	5.2%	5.2%	5.1%	5.2%	5.1%
Information media & telecommunications	0.8%	0.7%	0.6%	2.0%	1.4%	1.0%	1.2%	1.0%	0.9%	1.7%	1.2%	1.0%	1.5%	1.9%	1.0%	1.5%	0.8%	0.6%	0.8%	0.8%	0.5%	2.7%	2.3%	1.8%	2.0%	1.9%	1.5%	2.1%	1.9%	1.4%
Financial & insurance services	1.5%	1.4%	1.3%	2.4%	2.0%	1.9%	2.2%	1.8%	1.8%	1.9%	1.6%	1.5%	2.2%	2.0%	2.7%	1.6%	1.3%	1.2%	0.9%	1.0%	1.0%	4.0%	3.8%	3.8%	2.8%	2.8%	2.7%	3.0%	2.8%	2.9%
Rental, hiring & real estate services	1.5%	1.4%	1.6%	1.6%	1.4%	1.7%	1.4%	1.3%	1.6%	1.8%	1.4%	1.8%	1.1%	1.1%	1.3%	0.7%	0.7%	0.9%	1.3%	0.7%	0.6%	2.1%	2.2%	2.2%	2.5%	2.4%	2.4%	2.0%	2.0%	2.1%
Professional, scientific & technical services	3.9%	4.0%	4.4%	3.7%	3.3%	3.3%	4.4%	2.7%	2.9%	2.7%	2.6%	3.0%	3.4%	3.4%	3.6%	1.9%	2.5%	2.3%	2.9%	2.2%	2.5%	7.6%	7.6%	7.8%	4.8%	4.6%	4.8%	5.5%	5.4%	5.6%
Administrative & support services	2.2%	2.9%	2.6%	2.1%	2.5%	2.3%	1.6%	2.1%	2.7%	1.8%	2.5%	2.6%	1.6%	2.0%	1.9%	1.1%	1.2%	1.1%	1.2%	1.8%	1.2%	2.9%	3.4%	3.3%	3.0%	3.6%	3.4%	2.7%	3.2%	3.0%
Public administration & safety	3.6%	3.7%	3.9%	6.2%	5.5%	6.4%	4.6%	4.2%	5.2%	5.0%	4.9%	5.8%	5.8%	5.6%	6.5%	5.6%	4.7%	6.3%	8.6%	7.9%	10.3%	6.5%	6.4%	7.0%	5.4%	4.9%	5.1%	6.3%	6.2%	6.7%
Education & training	6.0%	7.1%	6.6%	9.8%	10.2%	9.7%	7.4%	8.1%	7.8%	8.3%	8.5%	8.0%	9.6%	9.4%	9.2%	7.2%	7.0%	6.8%	6.8%	6.8%	7.0%	8.1%	8.7%	8.3%	6.2%	6.6%	6.4%	7.5%	8.0%	7.6%
Health care & social assistance	5.1%	5.9%	6.2%	10.4%	10.2%	10.8%	8.9%	9.8%	11.2%	9.5%	10.5%	11.2%	10.4%	10.2%	11.2%	7.0%	6.9%	7.8%	8.1%	8.4%	9.7%	10.2%	10.5%	11.2%	8.3%	8.7%	9.4%	9.2%	9.5%	10.2%
Arts & recreation services	0.8%	0.7%	0.6%	0.8%	1.0%	0.8%	0.7%	0.8%	0.7%	0.8%	0.9%	0.7%	0.9%	0.9%	0.8%	0.4%	0.4%	0.4%	1.0%	0.8%	0.4%	1.5%	1.5%	1.4%	2.1%	1.9%	1.8%	1.5%	1.5%	1.4%
Other services	2.9%	3.1%	2.8%	4.3%	4.4%	4.1%	3.5%	3.3%	3.4%	4.1%	3.9%	3.7%	3.9%	3.8%	3.8%	3.1%	2.9%	3.4%	3.0%	2.3%	2.0%	4.4%	4.0%	3.7%	4.9%	4.5%	4.0%	4.3%	4.0%	3.7%

Source: Australian Bureau of Statistics (2007)

3.3 Historical Fleet Size

Boat ownership is the principal demand driver for recreational boating infrastructure. The composition of a region's boating fleet will determine the quantity and type of recreational boating infrastructure demanded.

Queensland Transport maintains detailed monthly statistics on boat registrations by pre-reformed local government area (LGA). Boat registrations data is collected for various vessel types and length. Available electronic records for boat registrations date back to 1999. Within the boat registration data sets, the various boat categories include:

- Sail boats;
- Boats without sails, including:
  - Motor boats without sails;
  - Speed boats; and
  - Jet Skis (or personal recreation vehicles).

The scope for towing boats is an important defining factor in terms of the nature of recreational boating infrastructure required. Industry consultations revealed that the suitability for towing varies between boat types (i.e. boats with sails and boats without sails). For example, sail boats with keels become difficult to tow, especially if they do not have a retractable keel, at around five metres in length, whereas motorboats can generally be towed up to around eight metres. The Perth Recreational Boating Facilities Study (2008) identifies that at about 7.5 metres in length there is a transition from storage of boats on trailers to water-based pens or moorings.

Similarly, the suitability of vessels for dry storage depends on type and length of vessel. Dry storage is most suitable for vessels with shallow drafts. Therefore, dry storage is most suitable for smaller sail boats (i.e. sail boats up to eight metres) and boats without sails up to around ten metres.

Wet berthing a boat represents a much greater expense than trailing or dry berthing. Therefore, wet berths are generally used only by larger vessels, i.e. as sail boats over five metres and boats without sails over eight metres.

For the purposes of this study, a five year time series by boat length and type for each of the recreational boating catchments has been analysed. This section of the report provides an overview of the growth in the total recreational boat fleet and the estimated size of the recreational boat fleet between 2005 and 2009.

More detailed estimates, including the distribution of the size of registered boats by type in each recreational boating catchment, have been provided in Appendix A.

3.3.1 Boundary Changes

For the purposes of this study, a five year time series by boat length and type for each of the recreational boating catchments has been analysed. This section of the report provides an overview of the growth in the total recreational boat fleet and the estimated size of the recreational boat fleet between 2005 and 2009.

Boat registrations for 2008 and 2009 were provided at the regional council level, resulting in some regional councils being contained in multiple recreational boating catchments. As a result, estimations for the split of boat registrations by type and length were undertaken based on

historical data at the LGA level. The recreational boating catchments affected by Council boundary changes were:

- Central West QLD;
- Emerald;
- Mackay;
- Rockhampton;
- Gladstone;
- South Central; and
- Darling Downs.

Table 3.3 below summaries the regional council areas contained within multiple recreational boating catchments.

Table 3.3: Regional Councils contained within Multiple Recreational Boating Catchments

Regional Council within Multiple Recreational Boating Catchments	Recreational Boating Catchments Affected by Change
Barcaldine Regional Council	• Central West QLD • Emerald
Issac Regional Council	• Emerald • Mackay
Central Highlands Regional Council	• Emerald • Rockhampton
Blackall Regional Council	• Central West QLD • Emerald
Banana Shire Council	• Gladstone • South Central
Western Downs Regional Council	• Darling Downs • South Central
Goondiwindi Regional Council	• Darling Downs • South Central

Source: Report of the Local Government Reform Commission (2007), Economic Associates estimates

3.3.2 Boat Registrations by Catchment

In the 2005-2009 period, all regions recorded an increase in the number of sail boats and motor boats registered, with the exception of sail boats in the South Central catchment.

Boat registrations in the SEQ North and SEQ South catchments account for approximately half of all boat registrations, with Cairns and Townsville also recording significant boat registrations.

The rate of growth in total boat registrations was highest in the South West QLD and Gladstone catchments. There was also significant growth in the number of boats registered in Queensland by overseas owners in the 2005 to 2009 period.

Table 3.4 below summarises the number of boat registrations by type and catchment.

Table 3.4: Number of Boat Registrations by Type and Recreational Boating Catchment, 2005-2009

	2005	2006	2007	2008	2009	Growth
Boats with Sail						
Cape York	38	40	35	46	49	28.9%
North West QLD	8	8	9	9	10	25.0%
Cairns	469	478	516	561	576	22.8%
Townsville	365	385	405	400	386	5.8%
Central West QLD	2	3	1	2	4	100.0%
Emerald	18	21	21	20	18	0.0%
Mackay	256	282	290	294	277	8.2%
Whitsunday	369	376	377	388	398	7.9%
Gladstone	173	169	185	192	195	12.7%
Rockhampton	200	218	220	209	216	8.0%
North Wide Bay	149	170	209	225	228	53.0%
South Wide Bay	411	435	448	494	494	20.2%
Darling Downs	40	54	51	54	65	62.5%
South Central	10	9	9	7	9	-10.0%
South West QLD	0	0	0	0	1	-
SEQ North	2,361	2,494	2,517	2,590	2,592	9.8%
SEQ South	1,418	1,474	1,544	1,623	1,607	13.3%
Interstate	74	72	95	100	101	36.5%
Overseas	-	-	-	-	-	-
Queensland	6,361	6,688	6,932	7,214	7,226	13.6%
Boats without Sail						
Cape York	1,503	1,482	1,294	1,741	1,748	16.3%
North West QLD	1,597	1,611	1,710	1,743	1,750	9.6%
Cairns	14,802	15,289	16,231	16,788	17,311	17.0%
Townsville	14,648	15,289	16,017	16,859	17,372	18.6%
Central West QLD	352	384	417	429	431	22.4%
Emerald	2,055	2,190	2,289	2,354	2,515	22.4%
Mackay	10,504	11,249	11,969	12,413	12,817	22.0%
Whitsunday	3,864	4,075	4,354	4,604	4,765	23.3%
Gladstone	6,136	6,574	7,198	7,510	7,804	27.2%
Rockhampton	6,809	7,218	7,661	8,057	8,354	22.7%
North Wide Bay	7,335	7,713	8,198	8,567	8,898	21.3%
South Wide Bay	11,606	12,166	12,881	13,524	13,940	20.1%
Darling Downs	5,866	6,030	6,204	6,498	6,859	16.9%
South Central	1,682	1,818	1,886	1,980	2,064	22.7%
South West QLD	139	159	169	219	239	71.9%
SEQ North	52,959	54,967	57,068	59,275	60,616	14.5%
SEQ South	45,261	47,523	49,518	51,983	53,542	18.3%
Interstate	478	528	548	618	613	28.2%
Overseas	7	5	1	5	5	-28.6%
Queensland	187,596	196,265	205,612	215,162	221,638	18.1%
Total Boats						
Cape York	1,541	1,522	1,329	1,787	1,797	16.6%
North West QLD	1,605	1,619	1,719	1,752	1,760	9.7%
Cairns	15,271	15,767	16,747	17,349	17,887	17.1%
Townsville	15,013	15,674	16,422	17,259	17,758	18.3%
Central West QLD	354	387	418	431	435	22.9%
Emerald	2,073	2,211	2,310	2,374	2,533	22.2%
Mackay	10,760	11,531	12,259	12,707	13,094	21.7%
Whitsunday	4,233	4,451	4,731	4,992	5,163	22.0%
Gladstone	6,309	6,743	7,383	7,702	7,999	26.8%
Rockhampton	7,009	7,436	7,881	8,266	8,570	22.3%
North Wide Bay	7,484	7,883	8,407	8,792	9,126	21.9%
South Wide Bay	12,017	12,601	13,329	14,018	14,434	20.1%
Darling Downs	5,906	6,084	6,255	6,552	6,924	17.2%
South Central	1,692	1,827	1,895	1,987	2,073	22.5%

	2005	2006	2007	2008	2009	Growth
South West QLD	139	159	169	219	240	72.7%
SEQ North	55,320	57,461	59,585	61,865	63,208	14.3%
SEQ South	46,679	48,997	51,062	53,606	55,149	18.1%
Interstate	552	600	643	718	714	29.3%
Overseas	7	5	1	5	5	-28.6%
Queensland	193,957	202,953	212,544	222,376	228,864	18.0%

Source: ABS (2010), Maritime Safety Queensland (various years)

In all recreational boating catchments, the majority of sail boat registrations were between five and fifteen metres in length, whereas the majority of motor boats were three to five metres in length.

Trailerable Boat Fleet

To estimate the size of the trailerable boat fleet, assumptions have been made in regards to the proportion of boats trailered by type and length, as summarised in Table 3.5 below. It has been assumed that no boat over ten metres in length is trailerable and the incidence of trailerable boats declines significantly for boats over five metres in length.

For boats registered in Queensland but with international ownership, it has been assumed that all of these boats are kept in marinas, and are hence not part of the trailerable boat fleet.

Table 3.5: Estimated Proportion of Trailerable Boats, 2005-09

	Sail Boats	Boats without Sail
<3 metres	100.0%	100.0%
3-5 metres	90.0%	100.0%
5-8 metres	50.0%	85.0%
8-10 metres	25.0%	50.0%
10-12 metres	0.0%	0.0%
12-15 metres	0.0%	0.0%
15-25 metres	0.0%	0.0%
>25 metres	0.0%	0.0%

Source: Economic Associates estimates

It is estimated that the trailerable boat fleet accounts for between approximately 86% and 99% of all boats within the recreational boat catchments. However, the proportion of boats that were trailerable declined between 2005 and 2009 (from 92.7% of total boats in 2005 to 92.2% of total boats in 2009).

The rate of growth in the size of the trailerable boat fleet was estimated to be highest in South West Queensland and Gladstone. All catchments recorded a decrease in the incidence of trailerable boats between 2005 and 2009.

Table 3.6: Estimated Size of the Trailerable Boat Fleet, 2005-2009

	2005	2006	2007	2008	2009	Growth
Trailerable Boat Fleet						
Cape York	1,433	1,406	1,232	1,651	1,660	15.8%
North West QLD	1,555	1,569	1,662	1,693	1,701	9.4%
Cairns	14,273	14,717	15,594	16,088	16,545	15.9%
Townsville	14,279	14,873	15,541	16,319	16,788	17.6%
Central West QLD	346	377	409	421	421	21.6%
Emerald	1,992	2,118	2,203	2,270	2,414	21.2%
Mackay	10,200	10,883	11,531	11,931	12,296	20.5%
Whitsunday	3,670	3,845	4,085	4,305	4,456	21.4%
Gladstone	5,948	6,360	6,947	7,239	7,507	26.2%
Rockhampton	6,554	6,940	7,333	7,682	7,951	21.3%
North Wide Bay	7,202	7,576	8,052	8,407	8,724	21.1%
South Wide Bay	11,296	11,817	12,471	13,071	13,460	19.2%
Darling Downs	5,730	5,876	6,041	6,313	6,662	16.3%
South Central	1,645	1,774	1,842	1,930	2,008	22.1%
South West QLD	136	156	165	213	232	70.1%
SEQ North	50,780	52,555	54,398	56,431	57,644	13.5%
SEQ South	41,920	43,902	45,761	47,984	49,467	18.0%
Interstate	407	437	448	506	512	25.7%
Overseas	-	-	-	-	-	-
Queensland	179,366	187,180	195,715	204,451	210,445	17.3%
Proportion of Total Boats						
Cape York	93.0%	92.4%	92.7%	92.4%	92.4%	-
North West QLD	96.9%	96.9%	96.7%	96.6%	96.6%	-
Cairns	93.5%	93.3%	93.1%	92.7%	92.5%	-
Townsville	95.1%	94.9%	94.6%	94.6%	94.5%	-
Central West QLD	97.8%	97.5%	97.8%	97.6%	96.8%	-
Emerald	96.1%	95.8%	95.4%	95.6%	95.3%	-
Mackay	94.8%	94.4%	94.1%	93.9%	93.9%	-
Whitsunday	86.7%	86.4%	86.3%	86.2%	86.3%	-
Gladstone	94.3%	94.3%	94.1%	94.0%	93.8%	-
Rockhampton	93.5%	93.3%	93.0%	92.9%	92.8%	-
North Wide Bay	96.2%	96.1%	95.8%	95.6%	95.6%	-
South Wide Bay	94.0%	93.8%	93.6%	93.2%	93.3%	-
Darling Downs	97.0%	96.6%	96.6%	96.4%	96.2%	-
South Central	97.2%	97.1%	97.2%	97.1%	96.9%	-
South West QLD	98.1%	98.0%	97.3%	97.4%	96.6%	-
SEQ North	91.8%	91.5%	91.3%	91.2%	91.2%	-
Interstate	89.8%	89.6%	89.6%	89.5%	89.7%	-
SEQ South	73.8%	72.8%	69.7%	70.4%	71.7%	
Overseas	-	-	-	-	-	-
Queensland	92.7%	92.5%	92.4%	92.2%	92.2%	-

Source: Economic Associates estimates

4 TRAILERABLE FLEET PROJECTIONS

Trailerable boat ownership is the most significant demand driver for boat ramps. The composition of a region's boating fleet will determine the quantity of boat ramps demanded. Therefore, to estimate demand for boat ramp lanes within each catchment in Queensland, it is necessary to estimate the size and composition of the boat fleet within each catchment area. Boat registrations represent the best source of data for estimating the size of the boat fleet. While it is recognised that unregistered craft may also make use of boat ramps, there are no data sets available to assess this impact on boat ramp lane demand, but it is unlikely to be significant.

Boats are frequently used in local government areas outside of where they are registered, however the catchments have been defined to minimise the incidence of trailerable boats being utilised outside the catchment in which they are registered[3].

4.1 Methodology for Preparing Trailerable Fleet Projections

In order to prepare trailerable fleet projections, assumptions are made regarding the following factors:

- Projected population by catchment (PIFU medium series projections used);
- Projected incidence of boat ownership (boat registrations per 1,000 persons); and
- Projected incidence of boats requiring a boat ramp (informed by historical data trends).

Analysis has been undertaken for two scenarios, namely the base case (or trend scenario) and the increased incidence of boat ownership scenario:

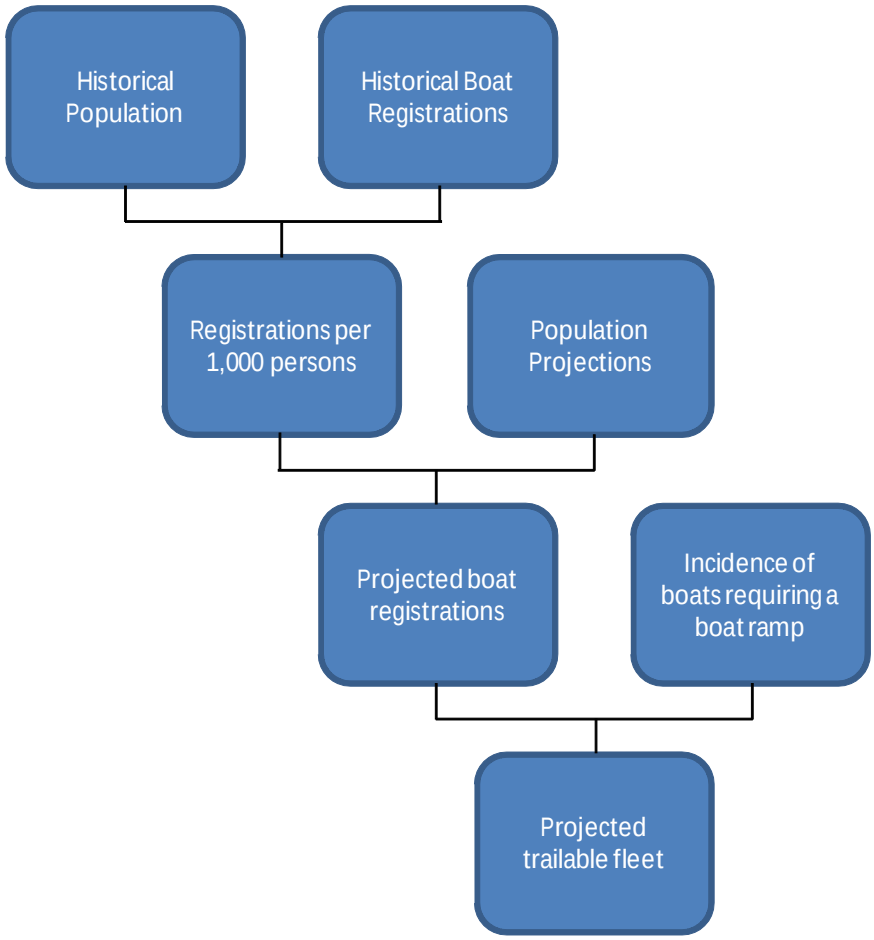
- *Base case scenario* – The base case scenario assumes that the incidence of boat ownership per 1,000 persons remains at the average level recorded between 2005 and 2009. The incidence of boat ownership is also kept constant throughout the projection period; and
- *Increasing incidence of boat ownership scenario* – The increasing incidence of boat ownership scenario assumes that the incidence of boat ownership per 1,000 persons continues to increase throughout the projection period, taking into account historical trends in the incidence of boat ownership.

The increasing incidence of boat ownership scenario has been presented to take into account the findings of Maritime Safety Queensland (2004), which highlighted that over 40% of recreational boat users surveyed were 55 years or over in age. As the proportion of persons aged 55 years and over increases throughout the projection period, it is anticipated that the incidence of boat ownership would also increase, ultimately impacting boat lane demand.

Figure 4.1 below outlines the methodology for preparing trailerable fleet projections.

[3] It is recognised that the incidence of trailerable boats in the SEQ North catchment utilising facilities in the SEQ South catchment is likely to be higher than for other catchments.

Figure 4.1: Methodology for Preparing Trailerable Fleet Projections



4.2 Historical Population & Boat Registrations

Analysis of the catchment area's estimated resident population (ERP) and boat registrations between 2005 and 2009 indicates a clear relationship between the two variables. Appendix A provides detailed tables in regards to ERP and boat registrations by type for each catchment between 2005 and 2009.

Boat ownership was significantly higher in the coastal catchments than inland catchments. On average, the highest incidence of boat ownership was in the following catchments:

- Whitsunday (145.80 boat registrations per 1,000 persons);
- Gladstone (103.55 boat registrations per 1,000 persons);
- Mackay (100.44 boat registrations per 1,000 persons);
- North Wide Bay (81.45 boat registrations per 1,000 persons); and
- South Wide Bay (78.35 boat registrations per 1,000 persons).

Overall, the incidence of boat ownership per 1,000 persons has increased in Queensland, with growth highest in South West Queensland (incidence of boat ownership increased at an average annual rate of 15.6% per annum).

Boat ownership was particularly low in the South West QLD catchment, averaging 22.39 boat registrations per 1,000 persons between 2005 and 2009. The incidence of motor boat ownership was significantly higher than sail boat ownership in all catchments.

Table 4.1 below summarises the number of boat registrations per 1,000 persons in the recreational boating catchments between 2005 and 2009.

Table 4.1: Registrations per 1,000 Persons, Recreational Boating Catchments, 2005-2009

	2005	2006	2007	2008	2009	Average	Ave. Ann. Change 2005-09
Sail Boats							
Cape York	1.39	1.45	1.24	1.60	1.69	1.48	5.0%
North West QLD	0.24	0.24	0.27	0.26	0.29	0.26	5.1%
Cairns	2.18	2.17	2.27	2.39	2.38	2.28	2.2%
Townsville	1.78	1.83	1.88	1.81	1.70	1.80	-1.2%
Central West QLD	0.18	0.27	0.09	0.19	0.37	0.22	20.1%
Emerald	0.59	0.67	0.66	0.62	0.54	0.61	-2.3%
Mackay	2.27	2.40	2.41	2.38	2.19	2.33	-1.0%
Whitsunday	12.08	11.99	11.73	11.67	11.64	11.82	-0.9%
Gladstone	2.62	2.49	2.66	2.68	2.65	2.62	0.2%
Rockhampton	1.75	1.86	1.83	1.71	1.74	1.78	-0.2%
North Wide Bay	1.53	1.70	2.05	2.15	2.13	1.91	8.6%
South Wide Bay	2.59	2.65	2.65	2.83	2.74	2.69	1.4%
Darling Downs	0.20	0.27	0.25	0.26	0.30	0.25	11.0%
South Central	0.24	0.22	0.21	0.17	0.21	0.21	-3.4%
South West QLD	0.00	0.00	0.00	0.00	0.12	0.02	n.a.
SEQ North	1.47	1.52	1.50	1.50	1.47	1.49	-0.1%
SEQ South	1.37	1.38	1.40	1.43	1.37	1.39	0.2%
Interstate	0.00	0.00	0.01	0.01	0.01	0.01	6.3%
Total	1.59	1.63	1.65	1.67	1.63	1.64	0.6%
Boats without Sail							
Cape York	55.14	53.85	45.83	60.45	60.42	55.14	2.3%
North West QLD	48.18	48.50	51.17	51.00	51.54	50.08	1.7%
Cairns	68.89	69.28	71.48	71.41	71.62	70.54	1.0%
Townsville	71.52	72.84	74.37	76.15	76.41	74.26	1.7%
Central West QLD	31.57	35.05	38.46	39.89	40.15	37.03	6.2%
Emerald	67.40	69.88	71.79	72.45	75.30	71.36	2.8%
Mackay	93.22	95.91	99.65	100.62	101.16	98.11	2.1%
Whitsunday	126.51	129.96	135.52	138.52	139.35	133.97	2.4%
Gladstone	93.09	96.91	103.66	104.90	106.09	100.93	3.3%
Rockhampton	59.44	61.60	63.87	66.08	67.11	63.62	3.1%
North Wide Bay	75.25	77.22	80.23	81.94	83.05	79.54	2.5%
South Wide Bay	73.17	74.09	76.16	77.57	77.32	75.66	1.4%
Darling Downs	29.35	29.60	30.04	30.99	32.03	30.40	2.2%
South Central	40.59	43.50	44.95	46.69	48.22	44.79	4.4%
South West QLD	16.37	19.00	20.61	26.71	29.12	22.36	15.5%
SEQ North	33.00	33.54	33.98	34.39	34.27	33.84	0.9%
SEQ South	43.57	44.55	45.02	45.89	45.81	44.97	1.3%
Interstate	0.03	0.03	0.03	0.04	0.03	0.03	4.7%
Total	46.96	47.98	49.00	49.94	50.09	48.79	1.6%
All Boats							
Cape York	56.54	55.30	47.07	62.05	62.12	56.62	2.4%
North West QLD	48.42	48.74	51.44	51.27	51.84	50.34	1.7%
Cairns	71.07	71.45	73.76	73.80	74.00	72.81	1.0%
Townsville	73.30	74.67	76.25	77.96	78.11	76.06	1.6%
Central West QLD	31.75	35.32	38.56	40.08	40.52	37.25	6.3%
Emerald	67.99	70.55	72.45	73.06	75.84	71.98	2.8%
Mackay	95.49	98.31	102.06	103.01	103.35	100.44	2.0%

	2005	2006	2007	2008	2009	Average	Ave. Ann. Change 2005-09
Whitsunday	138.59	141.96	147.25	150.19	150.99	145.80	2.2%
Gladstone	95.72	99.40	106.32	107.58	108.74	103.55	3.2%
Rockhampton	61.18	63.46	65.71	67.80	68.84	65.40	3.0%
North Wide Bay	76.78	78.93	82.28	84.10	85.18	81.45	2.6%
South Wide Bay	75.76	76.74	78.81	80.40	80.06	78.35	1.4%
Darling Downs	29.55	29.87	30.28	31.25	32.33	30.66	2.3%
South Central	40.83	43.72	45.16	46.85	48.43	45.00	4.4%
South West QLD	16.37	19.00	20.61	26.71	29.24	22.39	15.6%
SEQ North	34.47	35.06	35.48	35.89	35.74	35.33	0.9%
SEQ South	44.94	45.93	46.42	47.32	47.18	46.36	1.2%
Interstate	0.03	0.04	0.04	0.04	0.04	0.04	4.9%
Total	48.55	49.61	50.65	51.61	51.72	50.43	1.6%

Note: A positive (negative) average annual change figure represents an increase (decrease) in the incidence of boat ownership within the catchment.
Source: ABS (2010), Maritime Safety Queensland (various years)

4.3 Projected Size of Trailerable Boat Fleet

4.3.1 Population Projections

Both the base case scenario and the increasing incidence of boat ownership scenario rely on the latest edition of the Planning Information and Forecasting Unit's medium series population projections.

All recreational boating catchments are anticipated to record positive population growth between 2010 and 2031, with the rate of population growth anticipated to be highest in:

- SEQ South (2.4% per annum);
- Gladstone (2.0% per annum);
- Emerald (1.9% per annum);
- Mackay (1.7% per annum).

Table 4.2 below summarises the projected population growth by recreational boating catchment between 2010 and 2031.

Table 4.2: Population Projections by Recreational Boating Catchment, 2010-2031

	2010	2011	2016	2021	2026	2031	Ave. Ann. Growth 2010-2031
Cape York	28,946	28,964	30,024	31,322	32,811	34,262	0.8%
North West QLD	35,525	37,172	35,787	35,789	36,551	37,771	0.3%
Cairns	243,111	244,516	261,689	277,620	293,929	311,411	1.2%
Townsville	231,647	236,035	263,827	285,419	302,488	317,753	1.5%
Central West QLD	10,721	10,708	10,982	11,214	11,537	11,968	0.5%
Emerald	34,494	35,627	39,633	43,452	47,087	50,744	1.9%
Mackay	131,770	137,049	157,401	172,813	182,252	189,300	1.7%
Whitsunday	34,745	35,303	39,389	42,840	45,551	48,041	1.6%
Gladstone	75,380	77,244	85,191	93,540	102,982	113,104	2.0%
Rockhampton	127,449	130,476	139,989	149,482	159,391	169,268	1.4%
North Wide Bay	107,752	108,374	116,158	124,089	133,294	143,632	1.4%
South Wide Bay	183,399	186,561	204,573	220,404	236,065	251,526	1.5%
Darling Downs	217,879	221,666	239,394	258,455	276,637	294,999	1.5%
South Central	42,903	43,002	44,408	45,995	47,181	48,083	0.5%

	2010	2011	2016	2021	2026	2031	Ave. Ann. Growth 2010-2031
South West QLD	8,155	8,103	8,101	8,138	8,163	8,183	0.0%
SEQ North	1,788,569	1,808,711	1,969,757	2,098,534	2,197,490	2,277,537	1.2%
SEQ South	1,193,271	1,218,202	1,394,019	1,579,602	1,771,029	1,966,300	2.4%
Queensland	4,495,717	4,567,713	5,040,323	5,478,708	5,884,440	6,273,882	1.6%
Interstate	17,797,209	18,065,385	19,416,815	20,773,900	22,111,609	23,399,444	1.3%

Source: PIFU (2009)

4.3.2 Projected Recreational Boat Fleet

The projected fleet size in each catchment is estimated by applying the projected boat ownership ratio to the projected increase in population for the catchment area and then adding the projected growth in boat registrations to 2009 boat registrations.

Projections have not been undertaken for overseas based owners of boats registered in Queensland, as it has been assumed that these boats would be kept in marinas, hence having no impact on boat ramp demand. Furthermore, overseas boats account for only a marginal proportion of total boat registrations in Queensland[4] (less than 0.01% of total registrations in Queensland).

Base Case Scenario

In the base case scenario, it has been assumed that persons per boat registration remains constant at the average 2005 to 2009 level throughout the projection period.

The SEQ North and SEQ South catchments are anticipated to have the highest number of boat registrations in Queensland, with Cairns and Townsville also recording significant registrations. The rate of growth in boat registrations is projected to be highest in the SEQ South, Gladstone, Emerald and Mackay catchments.

Table 4.3 below summarises the projected boat registrations within each recreational boating catchment between 2010 and 2031.

Table 4.3: Projected Boat Registrations by Type – Base Case Scenario, 2010-2031

	2010	2011	2016	2021	2026	2031
Estimated Boats with Sail						
Cape York	49	49	51	53	55	57
North West QLD	10	11	10	10	11	11
Cairns	579	582	622	658	695	735
Townsville	394	402	452	490	521	549
Central West QLD	4	4	4	4	4	4
Emerald	19	19	22	24	26	29
Mackay	289	301	349	385	407	423
Whitsunday	404	411	459	500	532	562
Gladstone	200	205	226	247	272	299
Rockhampton	221	227	244	260	278	296
North Wide Bay	229	230	245	261	278	298
South Wide Bay	502	511	559	602	644	686
Darling Downs	66	67	71	76	81	86
South Central	9	9	9	10	10	10
South West QLD	1	1	1	1	1	1

[4] Boat registrations for overseas residents account for less than 0.01% of total boat registrations in Queensland.

	2010	2011	2016	2021	2026	2031
SEQ North	2,622	2,652	2,892	3,084	3,232	3,351
SEQ South	1,641	1,676	1,920	2,179	2,445	2,717
Interstate	102	104	111	118	125	132
Queensland	7,342	7,460	8,247	8,963	9,618	10,244
Estimated Boats without Sail						
Cape York	1,749	1,750	1,808	1,880	1,962	2,042
North West QLD	1,829	1,911	1,842	1,842	1,880	1,941
Cairns	17,410	17,509	18,721	19,845	20,996	22,230
Townsville	17,692	18,018	20,084	21,689	22,957	24,092
Central West QLD	431	430	440	449	461	477
Emerald	2,593	2,674	2,960	3,233	3,493	3,754
Mackay	13,316	13,834	15,833	17,347	18,274	18,967
Whitsunday	4,839	4,914	5,462	5,925	6,289	6,623
Gladstone	7,988	8,176	8,980	9,824	10,779	11,802
Rockhampton	8,542	8,735	9,341	9,946	10,577	11,206
North Wide Bay	8,947	8,997	9,617	10,248	10,981	11,805
South Wide Bay	14,175	14,415	15,779	16,978	18,164	19,335
Darling Downs	6,972	7,087	7,627	8,207	8,760	9,319
South Central	2,068	2,073	2,136	2,207	2,260	2,301
South West QLD	238	237	237	237	238	238
SEQ North	61,290	61,972	67,424	71,783	75,133	77,843
SEQ South	54,641	55,763	63,675	72,026	80,640	89,427
Interstate	622	631	675	720	764	806
Queensland	225,342	229,126	252,641	274,387	294,610	314,208
Total Boats						
Cape York	1,798	1,799	1,859	1,933	2,017	2,099
North West QLD	1,839	1,922	1,852	1,853	1,891	1,952
Cairns	17,989	18,091	19,342	20,503	21,692	22,965
Townsville	18,086	18,420	20,536	22,179	23,479	24,641
Central West QLD	435	434	444	453	465	481
Emerald	2,612	2,694	2,982	3,257	3,519	3,783
Mackay	13,604	14,135	16,182	17,732	18,681	19,390
Whitsunday	5,243	5,325	5,921	6,425	6,821	7,184
Gladstone	8,188	8,381	9,206	10,072	11,051	12,101
Rockhampton	8,764	8,962	9,585	10,206	10,855	11,502
North Wide Bay	9,176	9,227	9,862	10,509	11,259	12,103
South Wide Bay	14,678	14,926	16,338	17,580	18,808	20,021
Darling Downs	7,038	7,154	7,698	8,283	8,841	9,404
South Central	2,077	2,082	2,145	2,217	2,270	2,311
South West QLD	239	238	238	238	239	239
SEQ North	63,912	64,624	70,316	74,867	78,365	81,194
SEQ South	56,282	57,438	65,595	74,205	83,085	92,144
Interstate	724	734	786	838	889	938
Queensland	232,684	236,586	260,888	283,349	304,227	324,453

Note: Projected boat registrations do not include overseas owned boats.
Source: PIFU (2009), Maritime Safety Queensland (various years), Economic Associates estimates

Increased Incidence of Boat Ownership Scenario

In the increased incidence of boat ownership scenario, it has been assumed that the growth in boat registrations per 1,000 persons continues to increase, but at a lower rate than recorded in the 2005-2009 period.

For the purposes of this assessment, the average annual increase in the incidence of boat registrations per 1,000 persons is assumed to be:

- 75% of the 2005-09 average annual growth rate between 2009 and 2021; and

- 50% of the 2005-09 average annual growth rate between 2021 and 2031.

By 2031, under the increased incidence of boat ownership scenario, the total number of boats in Queensland is projected to be 28.4% higher than under the base case scenario.

Table 4.4: Projected Boat Registrations by Type – Increased Incidence of Boat Ownership Scenario, 2010-2031

	2010	2011	2016	2021	2026	2031
Estimated Boats with Sail						
Cape York	51	53	66	82	97	114
North West QLD	11	12	14	16	19	22
Cairns	589	602	699	806	901	1,008
Townsville	390	394	420	435	447	455
Central West QLD	4	4	4	4	5	5
Emerald	18	19	19	19	20	20
Mackay	286	295	327	347	357	362
Whitsunday	402	405	437	458	476	491
Gladstone	200	206	229	254	281	310
Rockhampton	221	226	241	256	272	287
North Wide Bay	244	261	380	552	726	958
South Wide Bay	508	522	603	685	759	838
Darling Downs	71	78	125	198	273	375
South Central	9	9	8	7	7	6
South West QLD	1	1	1	1	1	1
SEQ North	2,619	2,647	2,872	3,049	3,185	3,293
SEQ South	1,951	1,995	2,298	2,621	2,952	3,292
Interstate	107	114	154	207	256	314
Queensland	7,682	7,841	8,896	9,995	11,030	12,150
Estimated Boats without Sail						
Cape York	1,779	1,811	2,045	2,324	2,576	2,848
North West QLD	1,854	1,965	2,015	2,147	2,287	2,465
Cairns	17,538	17,768	19,720	21,695	23,532	25,543
Townsville	17,922	18,489	21,988	25,309	27,952	30,598
Central West QLD	436	440	480	520	557	602
Emerald	2,652	2,796	3,450	4,196	4,871	5,623
Mackay	13,536	14,295	17,724	21,007	23,311	25,477
Whitsunday	4,930	5,100	6,229	7,415	8,372	9,376
Gladstone	8,195	8,605	10,722	13,300	15,878	18,911
Rockhampton	8,749	9,162	11,010	13,167	15,138	17,333
North Wide Bay	9,116	9,339	10,977	12,860	14,687	16,827
South Wide Bay	14,327	14,726	17,002	19,288	21,380	23,576
Darling Downs	7,093	7,335	8,597	10,071	11,382	12,815
South Central	2,136	2,211	2,681	3,260	3,720	4,217
South West QLD	240	242	257	274	286	298
SEQ North	61,734	62,873	70,940	78,302	83,950	89,084
SEQ South	60,330	62,170	74,552	88,525	102,394	117,281
Interstate	644	676	861	1,092	1,300	1,540
Queensland	233,212	240,005	281,249	324,751	363,574	404,413
Total Boats						
Cape York	1,830	1,864	2,110	2,406	2,673	2,962
North West QLD	1,865	1,977	2,029	2,163	2,306	2,487
Cairns	18,127	18,370	20,420	22,500	24,433	26,550
Townsville	18,312	18,883	22,408	25,743	28,398	31,054
Central West QLD	440	444	484	525	562	607
Emerald	2,670	2,815	3,469	4,215	4,890	5,643
Mackay	13,822	14,591	18,051	21,354	23,668	25,839
Whitsunday	5,331	5,506	6,665	7,873	8,848	9,867
Gladstone	8,395	8,810	10,950	13,554	16,159	19,221
Rockhampton	8,969	9,388	11,250	13,423	15,409	17,620

	2010	2011	2016	2021	2026	2031
North Wide Bay	9,360	9,600	11,357	13,412	15,413	17,785
South Wide Bay	14,835	15,248	17,605	19,973	22,139	24,414
Darling Downs	7,165	7,414	8,721	10,269	11,654	13,189
South Central	2,145	2,220	2,689	3,268	3,727	4,224
South West QLD	241	243	258	275	287	299
SEQ North	64,354	65,520	73,812	81,350	87,135	92,377
SEQ South	62,281	64,165	76,849	91,146	105,345	120,573
Interstate	751	790	1,015	1,298	1,556	1,854
Queensland	240,894	247,846	290,144	334,746	374,604	416,563

Note: Projected boat registrations do not include overseas owned boats.
Source: PIFU (2009), Maritime Safety Queensland (various years), Economic Associates estimates

4.3.3 Projected Trailerable Fleet

To estimate the projected size of the trailerable boat fleet, the proportions as outlined in Table 4.5 below have been applied to total fleet projections. Under both scenarios, it has been assumed that the incidence of boats requiring a boat ramp remains constant throughout the projection period.

The incidence of boats requiring a boat ramp is based on the proportions presented in Table 3.5, applied to the boat fleet of each individual catchment.

It has been assumed that 92.0% of boats registered in Queensland require a boat ramp, comprising 25.8% of boats with sail and 94.1% of boats without sail.

The incidence of boats requiring a boat ramp (i.e. those not stored in a wet marina berth) was highest in Central West Queensland, South Central and North West Queensland and lowest in Whitsunday and for interstate boats.

In all recreational boating catchments, a higher incidence of boats without sail would require a boat ramp than sail boats.

Table 4.5: Incidence of Boats Requiring a Boat Ramp, Recreational Boating Catchments

	Boats with Sail	Boats within Sail	All Boats
Cape York	23.6%	94.3%	92.4%
North West QLD	27.5%	97.0%	96.6%
Cairns	23.6%	94.8%	92.5%
Townsville	26.1%	96.1%	94.5%
Central West QLD	45.0%	97.3%	96.8%
Emerald	29.5%	95.8%	95.3%
Mackay	24.8%	95.4%	93.9%
Whitsunday	16.4%	92.1%	86.3%
Gladstone	22.9%	95.6%	93.9%
Rockhampton	26.9%	96.6%	92.8%
North Wide Bay	23.2%	97.4%	95.6%
South Wide Bay	26.9%	95.6%	93.2%
Darling Downs	26.9%	96.8%	96.2%
South Central	26.9%	97.0%	96.7%
South West QLD	26.9%	96.6%	96.3%
SEQ North	26.9%	94.0%	91.2%
SEQ South	28.4%	91.5%	89.7%
Interstate	12.7%	81.4%	71.7%
Queensland	25.8%	94.1%	92.0%

Source: Economic Associates estimates

Base Case Scenario

Between 2010 and 2031, the largest increases in boats requiring a boat ramp are projected to occur in:

- SEQ South (additional 32,148 boats);
- SEQ North (additional 15,798 boats);
- Townsville (additional 6,209 boats); and
- Mackay (additional 5,449 boats).

The Central West Queensland and South West QLD catchments are not anticipated to record significant demand growth between 2010 and 2031.

Table 4.6: Projected Boats Requiring a Boat Ramp – Base Case Scenario, 2010-2031

	2010	2011	2016	2021	2026	2031	Change
Cape York	1,660	1,661	1,717	1,785	1,863	1,939	279
North West QLD	1,777	1,857	1,790	1,790	1,827	1,887	109
Cairns	16,640	16,735	17,899	18,979	20,084	21,268	4,629
Townsville	17,098	17,415	19,419	20,976	22,207	23,308	6,209
Central West QLD	421	420	430	439	450	466	45
Emerald	2,490	2,568	2,844	3,107	3,357	3,609	1,120
Mackay	12,777	13,276	15,204	16,664	17,558	18,225	5,449
Whitsunday	4,525	4,595	5,111	5,546	5,888	6,202	1,677
Gladstone	7,685	7,867	8,642	9,457	10,379	11,367	3,682
Rockhampton	8,131	8,315	8,895	9,474	10,078	10,680	2,549
North Wide Bay	8,772	8,821	9,429	10,049	10,769	11,577	2,805
South Wide Bay	13,684	13,916	15,223	16,397	17,534	18,679	4,995
Darling Downs	6,767	6,879	7,403	7,968	8,505	9,049	2,282
South Central	2,009	2,013	2,075	2,144	2,196	2,235	226
South West QLD	230	229	229	230	230	231	1
SEQ North	58,316	58,967	64,105	68,331	71,488	74,114	15,798
SEQ South	50,482	51,519	58,831	66,549	74,510	82,631	32,148
Interstate	519	526	563	600	637	672	153
Queensland	213,983	217,581	239,809	260,483	279,559	298,139	84,156

Source: Economic Associates estimates

Increased Incidence of Boat Ownership Scenario

Between 2010 and 2031, the largest increases in boats requiring a boat ramp are projected to occur in:

- SEQ South (additional 52,512 boats);
- SEQ North (additional 25,956 boats);
- Townsville (additional 12,234 boats); and
- Mackay (additional 11,461 boats).

The Central West QLD and South West QLD catchments are anticipated to record limited growth in boats requiring a boat ramp between 2010 and 2031.

Table 4.7: Projected Boats Requiring a Boat Ramp – Increased Incidence of Boat Ownership Scenario, 2010-2031

	2010	2011	2016	2021	2026	2031	Change
Cape York	1,689	1,720	1,943	2,210	2,452	2,712	1,023
North West QLD	1,802	1,910	1,959	2,088	2,224	2,398	596
Cairns	16,765	16,987	18,870	20,777	22,550	24,491	7,726
Townsville	17,319	17,866	21,245	24,450	27,000	29,553	12,234
Central West QLD	426	431	469	509	545	589	163
Emerald	2,546	2,685	3,314	4,031	4,680	5,403	2,858
Mackay	12,987	13,717	17,010	20,161	22,371	24,448	11,461
Whitsunday	4,609	4,767	5,816	6,916	7,804	8,735	4,126
Gladstone	7,883	8,278	10,314	12,793	15,272	18,188	10,305
Rockhampton	8,327	8,720	10,479	12,532	14,407	16,496	8,169
North Wide Bay	8,940	9,162	10,790	12,669	14,495	16,639	7,699
South Wide Bay	13,828	14,213	16,396	18,629	20,635	22,780	8,952
Darling Downs	6,886	7,122	8,346	9,808	11,080	12,517	5,631
South Central	2,075	2,148	2,605	3,168	3,615	4,098	2,024
South West QLD	233	234	248	265	277	289	57
SEQ North	58,717	59,798	67,401	74,446	79,770	84,674	25,956
SEQ South	55,779	57,475	68,895	81,777	94,566	108,290	52,512
Interstate	538	565	719	913	1,088	1,289	752
Queensland	220,976	227,039	264,321	303,608	338,443	375,130	154,154

Source: Economic Associates estimates

5 INFRASTRUCTURE DEMAND ASSESSMENT

The demand for boating infrastructure will be determined by both the size of the trailerable fleet within the catchment and the likelihood of this population using their boats during peak periods.

5.1 Literature Findings

5.1.1 Behaviour of Recreational Boaters

The boating behaviour of recreational boaters was surveyed by the National Maritime Safety Committee in 2009. In relation to identifying peak periods, some key findings include:

- 95% of boaters use their boats in December and January. Only one third of boaters use their boats in June and July.
- Weekends are the most popular times for operating a boat with 70% of boaters operating their boat on Saturdays and 83% of boaters operating their boats on Sundays.
- Almost half of respondents use their boats between 6am and 10am.
- The most popular holiday period for operating a boat is Christmas/New Year with 73% of boaters operating during the holiday period. Easter is the next most popular holiday with 48% of boaters using their boats during this holiday period.
- Almost 40% of boaters use their boats 2-3 times per month. An additional 20% of boaters use their boats once a week.
- Almost half of respondents spend 3-5 hours on the water when they use their boats.

5.1.2 Peak Demand & Capacity

A Perth study and a Redland City study have been identified as endeavouring to count the use of boat ramps during the peak usage period of public-holiday long-weekends. The Perth study identified the total peak number of car/trailer units recorded at 32 public boat launching sites in January 2005 of 1,944 (Department for Planning and Infrastructure WA, 2009). Taking a percentage of the total 38,970 registered recreational boats (under 7.5 metres) in January 2005, a usage rate of 5% of Perth's public boat launching facilities on a peak boating day is derived. While the Redland City study did not undertake this calculation directly, the study counted a total peak number of car/trailer units of 1,220 at 16 public boat ramps in May 2009 (Rose *et. al.*, 2009). From the report, total boat registrations in May 2009 in Redlands were 10,551, giving a usage rate of 11.5%. However, boat registrations were not defined by the size of the vessel nor specific to May of 2009.

A launching facility's ability to cope with peak demand can be affected by many factors including location and the number of ramp lanes available. Surveyed recreational boat users identify that they choose a particular ramp because it is either close to home (48%) or close to the destination (42%) (Cameron McNamara, 1984).

Below are some key points regarding boat ramp capacity (Department of Harbours and Marine, 1980):

- Ramps are essentially used for 6.5 hours per day;

- The hourly launch or retrieval rate therefore is 15 boats per hour (based on an average launch or retrieval time of 4 minutes);
- Capacity is approximately 50 boats per lane per day; and
- One boat ramp lane is required for every 250 registered trailer boats; and
- Peak usage on an individual day is expected to be 20% of all registered trailer boats.

National Marine Safety Committee (2009) presented estimates of recreational boating usage in Australia during peak periods. Boat usage varied significantly, ranging between 2% of respondents during other public holidays and non peak periods to 73% of respondents over the Christmas / New Year break.

Table 5.1: Operating Time by Holiday Period, Australia

Holiday	Proportion of Respondents Using Boat
Xmas / New Year	73%
Easter	48%
School Holidays	37%
Queen's Birthday	30%
Labour Day	29%
Other Public Holidays / Non Peak Periods	2%

Source: National Marine Safety Committee (2009)

5.1.3 Average Demand

In order to determine the demand for boat ramps, estimates have been made regarding the average demand on a given weekend, consistent with Maritime Safety Queensland policy:

When providing boating facilities the Queensland Government caters for average demand, which is taken to be demand for a facility on ordinary two-day weekends. Where funding and circumstances permit, the government caters for a degree of high demand, which is taken to be demand for a facility on three-day long weekends.

Average demand has been estimated using the data presented in Table 5.1 above. Assumptions have been made regarding frequency of usage over holiday periods which extended over more than one weekend (i.e. Xmas / New Year, school holidays and other public holidays / non peak periods).

Overall, it has been estimated that average demand for recreational boating facilities on a weekend is 8% (refer to Table 5.2).

Table 5.2: Estimated Average Demand on a Weekend

Holiday	Usage	Weekends Included	Times used per period	Usage / Weekend
Xmas / New Year	73%	2	1.5	55%
Easter	48%	1	1	48%
School Holidays	37%	12	5	15%
Queen's Birthday	30%	1	1	30%
Labour Day	29%	1	1	29%
Other Public Holidays / Non Peak Periods	2%	35	1.5	0%
Total		52		8%

Source: National Marine Safety Committee (2009), Economic Associates estimates

Maritime Safety Queensland does not cater for peak demand, such as holiday long weekends, Christmas and Easter periods or demand for boat ramps for special events like Brisbane's Riverfire. This is because funds (driven largely by collection of recreational boat registration fees) are stretched meeting demand for basic boating infrastructure such as dredging, landings, breakwaters and boat ramps around the state and local managing authorities cannot allocate sufficient resources (land and funds) for peak demand days. Scarce foreshore land is in intense demand for other purposes, as is funding.

5.2 Infrastructure Demand

The literature findings above have outlined average demand and peak demand on a single weekend throughout the year. Based on the above findings, three scenarios estimating boat ramp lane demand have been provided:

- Average demand – 8% of boats demanding a boat lane on any given weekend;
- High demand – 14% of boats demanding a boat lane on any given weekend; and
- Peak demand – 20% of boats demanding a boat lane on any given weekend.

In estimating average demand on a weekend in Table 5.2, it was noted that on 35 of the 52 weekends, usage was estimated at 2% of the trailerable boat fleet. However, this figure is likely to be higher on certain weekends, for example when weather is particularly favourable, on other public holidays (e.g. Exhibition holidays), or long weekends resulting from a pupil free day at their child's school.

The high demand scenario has been presented as a midpoint between the estimated average demand on a typical two day weekend against peak demand.

5.2.1 Average Demand Scenario

Boats Demanding a Boat Lane

Based on the assumption of 8% of boats demanding a boat lane on any given weekend, demand is projected to be highest in:

- SEQ North (5,929 to 6,774 boats by 2031);
- SEQ South (6,610 to 8,663 boats by 2031);
- Townsville (1,865 to 2,364 boats by 2031); and
- Cairns (1,701 to 1,959 boats by 2031).

Table 5.3 below summarises the estimated demand in each of the recreational boating catchments in Queensland under average demand scenario.

Table 5.3: Boats Demanding a Boat Lane – Average Demand Scenario, Recreational Boating Catchments, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Base Case Scenario						
Cape York	133	133	137	143	149	155
North West QLD	142	149	143	143	146	151
Cairns	1,331	1,339	1,432	1,518	1,607	1,701
Townsville	1,368	1,393	1,554	1,678	1,777	1,865
Central West QLD	34	34	34	35	36	37
Emerald	199	205	227	249	269	289
Mackay	1,022	1,062	1,216	1,333	1,405	1,458
Whitsunday	362	368	409	444	471	496
Gladstone	615	629	691	757	830	909
Rockhampton	650	665	712	758	806	854
North Wide Bay	702	706	754	804	861	926
South Wide Bay	1,095	1,113	1,218	1,312	1,403	1,494
Darling Downs	541	550	592	637	680	724
South Central	161	161	166	172	176	179
South West QLD	18	18	18	18	18	18
SEQ North	4,665	4,717	5,128	5,466	5,719	5,929
SEQ South	4,039	4,122	4,706	5,324	5,961	6,610
Interstate	42	42	45	48	51	54
Queensland	17,119	17,406	19,185	20,839	22,365	23,851
Increasing Incidence of Boats Scenario						
Cape York	135	138	155	177	196	217
North West QLD	144	153	157	167	178	192
Cairns	1,341	1,359	1,510	1,662	1,804	1,959
Townsville	1,385	1,429	1,700	1,956	2,160	2,364
Central West QLD	34	34	38	41	44	47
Emerald	204	215	265	322	374	432
Mackay	1,039	1,097	1,361	1,613	1,790	1,956
Whitsunday	369	381	465	553	624	699
Gladstone	631	662	825	1,023	1,222	1,455
Rockhampton	666	698	838	1,003	1,153	1,320
North Wide Bay	715	733	863	1,014	1,160	1,331
South Wide Bay	1,106	1,137	1,312	1,490	1,651	1,822
Darling Downs	551	570	668	785	886	1,001
South Central	166	172	208	253	289	328
South West QLD	19	19	20	21	22	23
SEQ North	4,697	4,784	5,392	5,956	6,382	6,774
SEQ South	4,462	4,598	5,512	6,542	7,565	8,663
Interstate	43	45	58	73	87	103
Queensland	17,708	18,224	21,346	24,651	27,587	30,687

Source: Economic Associates estimates

Boat Ramp Lane Demand

Converting peak demand estimates into boat ramp lane demand has been undertaken based on throughput rates of ramps. In SKM (1988) and Rose et. al. (2009), a rate of 30 boats per lane per day is considered to provide unhampered overall amenity, whereas a rate of 50 boats per lane per day represents congested operations.

It has been assumed that the midpoint between unhampered overall amenity (30 boats per lane per day) and congested operations (50 boats per lane per day) would represent the ideal scenario,

as it balances the needs and wants of trailerable boat owners against the costs incurred by local governments, state governments and the private sector in providing boat ramps.

The results for the throughput rates of ramps under the unhampered overall amenity and congested operations scenarios have been presented in Appendix C.

By 2031, it is estimated that boat ramp lane demand will increase to between 596 lanes and 767 lanes, with SEQ North and SEQ South the key drivers of boat ramp lane demand.

Table 5.4 below provides a summary of boat ramp lane demand by recreational boating catchment under the average demand scenario between 2010 and 2031.

Table 5.4: Boat Ramp Lane Demand by Recreational Boating Catchment –Average Demand Scenario, 2010-2031

	2010	2011	2016	2021	2026	2031
Base Case Scenario						
Cape York	3	3	3	4	4	4
North West QLD	4	4	4	4	4	4
Cairns	33	33	36	38	40	43
Townsville	34	35	39	42	44	47
Central West QLD	1	1	1	1	1	1
Emerald	5	5	6	6	7	7
Mackay	26	27	30	33	35	36
Whitsunday	9	9	10	11	12	12
Gladstone	15	16	17	19	21	23
Rockhampton	16	17	18	19	20	21
North Wide Bay	18	18	19	20	22	23
South Wide Bay	27	28	30	33	35	37
Darling Downs	14	14	15	16	17	18
South Central	4	4	4	4	4	4
South West QLD	0	0	0	0	0	0
SEQ North	117	118	128	137	143	148
SEQ South	101	103	118	133	149	165
Interstate	1	1	1	1	1	1
Queensland	428	435	480	521	559	596
Increasing Incidence of Boat Ownership Scenario						
Cape York	3	3	4	4	5	5
North West QLD	4	4	4	4	4	5
Cairns	34	34	38	42	45	49
Townsville	35	36	42	49	54	59
Central West QLD	1	1	1	1	1	1
Emerald	5	5	7	8	9	11
Mackay	26	27	34	40	45	49
Whitsunday	9	10	12	14	16	17
Gladstone	16	17	21	26	31	36
Rockhampton	17	17	21	25	29	33
North Wide Bay	18	18	22	25	29	33
South Wide Bay	28	28	33	37	41	46
Darling Downs	14	14	17	20	22	25
South Central	4	4	5	6	7	8
South West QLD	0	0	0	1	1	1
SEQ North	117	120	135	149	160	169
SEQ South	112	115	138	164	189	217
Interstate	1	1	1	2	2	3
Queensland	443	456	534	616	690	767

Source: Economic Associates estimates

5.2.2 High Demand Scenario

Boats Demanding a Boat Lane

Based on the assumption of 14% of boats demanding a boat lane on any given weekend, demand is projected to be highest in (see Table 5.5):

- SEQ North (10,376 to 11,854 boats by 2031);
- SEQ South (11,568 to 15,161 boats by 2031);
- Townsville (3,263 to 4,137 boats by 2031); and
- Cairns (2,978 to 3,429 boats by 2031).

Table 5.5 below summarises the estimated demand in each of the recreational boating catchments in Queensland under the high demand scenario.

Table 5.5: Boats Demanding a Boat Lane – High Demand Scenario, Recreational Boating Catchments, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Base Case Scenario						
Cape York	232	233	240	250	261	271
North West QLD	249	260	251	251	256	264
Cairns	2,330	2,343	2,506	2,657	2,812	2,978
Townsville	2,394	2,438	2,719	2,937	3,109	3,263
Central West QLD	59	59	60	61	63	65
Emerald	349	359	398	435	470	505
Mackay	1,789	1,859	2,129	2,333	2,458	2,552
Whitsunday	634	643	715	776	824	868
Gladstone	1,076	1,101	1,210	1,324	1,453	1,591
Rockhampton	1,138	1,164	1,245	1,326	1,411	1,495
North Wide Bay	1,228	1,235	1,320	1,407	1,508	1,621
South Wide Bay	1,916	1,948	2,131	2,296	2,455	2,615
Darling Downs	947	963	1,036	1,116	1,191	1,267
South Central	281	282	290	300	307	313
South West QLD	32	32	32	32	32	32
SEQ North	8,164	8,255	8,975	9,566	10,008	10,376
SEQ South	7,068	7,213	8,236	9,317	10,431	11,568
Interstate	73	74	79	84	89	94
Queensland	29,958	30,461	33,573	36,468	39,138	41,739
Increasing Incidence of Boats Scenario						
Cape York	237	241	272	309	343	380
North West QLD	252	267	274	292	311	336
Cairns	2,347	2,378	2,642	2,909	3,157	3,429
Townsville	2,425	2,501	2,974	3,423	3,780	4,137
Central West QLD	60	60	66	71	76	82
Emerald	356	376	464	564	655	756
Mackay	1,818	1,920	2,381	2,823	3,132	3,423
Whitsunday	645	667	814	968	1,093	1,223
Gladstone	1,104	1,159	1,444	1,791	2,138	2,546
Rockhampton	1,166	1,221	1,467	1,754	2,017	2,309
North Wide Bay	1,252	1,283	1,511	1,774	2,029	2,329
South Wide Bay	1,936	1,990	2,295	2,608	2,889	3,189
Darling Downs	964	997	1,168	1,373	1,551	1,752
South Central	290	301	365	444	506	574
South West QLD	33	33	35	37	39	40
SEQ North	8,220	8,372	9,436	10,422	11,168	11,854
SEQ South	7,809	8,047	9,645	11,449	13,239	15,161
Interstate	75	79	101	128	152	181

	2010	2011	2016	2021	2026	2031
Queensland	30,988	31,892	37,355	43,140	48,276	53,702

Source: Economic Associates estimates

Boat Ramp Lane Demand

Converting peak demand estimates into boat ramp lane demand has been undertaken based on throughput rates of ramps. In SKM (1988) and Rose et. al. (2009), a rate of 30 boats per lane per day is considered to provide unhampered overall amenity, whereas a rate of 50 boats per lane per day represents congested operations.

It has been assumed that the midpoint between unhampered overall amenity (30 boats per lane per day) and congested operations (50 boats per lane per day) would represent the ideal scenario, as it balances the needs and wants of trailerable boat owners against the costs incurred by local governments, state governments and the private sector in providing boat ramps.

The results for the throughput rates of ramps under the unhampered overall amenity and congested operations scenarios have been presented in Appendix C.

By 2031, it is estimated that boat ramp lane demand will increase to between 1,043 lanes and 1,343 lanes, with SEQ North and SEQ South the key drivers of boat ramp lane demand.

Table 5.6 below provides a summary of boat ramp lane demand by recreational boating catchment under the high demand scenario between 2010 and 2031.

Table 5.6: Boat Ramp Lane Demand by Recreational Boating Catchment – Medium Infrastructure Demand Scenario, 2010-2031

	2010	2011	2016	2021	2026	2031
Base Case Scenario						
Cape York	6	6	6	6	7	7
North West QLD	6	7	6	6	6	7
Cairns	58	59	63	66	70	74
Townsville	60	61	68	73	78	82
Central West QLD	1	1	2	2	2	2
Emerald	9	9	10	11	12	13
Mackay	45	46	53	58	61	64
Whitsunday	16	16	18	19	21	22
Gladstone	27	28	30	33	36	40
Rockhampton	28	29	31	33	35	37
North Wide Bay	31	31	33	35	38	41
South Wide Bay	48	49	53	57	61	65
Darling Downs	24	24	26	28	30	32
South Central	7	7	7	8	8	8
South West QLD	1	1	1	1	1	1
SEQ North	204	206	224	239	250	259
SEQ South	177	180	206	233	261	289
Interstate	2	2	2	2	2	2
Queensland	749	762	839	912	978	1,043
Increasing Incidence of Boat Ownership Scenario						
Cape York	6	6	7	8	9	9
North West QLD	6	7	7	7	8	8
Cairns	59	59	66	73	79	86
Townsville	61	63	74	86	94	103
Central West QLD	1	2	2	2	2	2
Emerald	9	9	12	14	16	19
Mackay	45	48	60	71	78	86

	2010	2011	2016	2021	2026	2031
Whitsunday	16	17	20	24	27	31
Gladstone	28	29	36	45	53	64
Rockhampton	29	31	37	44	50	58
North Wide Bay	31	32	38	44	51	58
South Wide Bay	48	50	57	65	72	80
Darling Downs	24	25	29	34	39	44
South Central	7	8	9	11	13	14
South West QLD	1	1	1	1	1	1
SEQ North	206	209	236	261	279	296
SEQ South	195	201	241	286	331	379
Interstate	2	2	3	3	4	5
Queensland	775	797	934	1,078	1,207	1,343

Source: Economic Associates estimates

5.2.3 Peak Demand Scenario

Boats Demanding a Boat Lane

Based on the assumption of 20% of boats demanding a boat lane on any given weekend, demand is projected to be highest in:

- SEQ North (14,823 to 16,935 boats by 2031);
- SEQ South (16,526 to 21,658 boats by 2031);
- Townsville (4,662 to 5,911 boats by 2031); and
- Cairns (4,254 to 4,898 boats by 2031).

Table 5.7 below summarises the estimated demand in each of the recreational boating catchments in Queensland under the peak demand scenario.

Table 5.7: Boats Demanding a Boat Lane – Peak Demand Scenario, Recreational Boating Catchments, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Base Case Scenario						
Cape York	332	332	343	357	373	388
North West QLD	355	371	358	358	365	377
Cairns	3,328	3,347	3,580	3,796	4,017	4,254
Townsville	3,420	3,483	3,884	4,195	4,441	4,662
Central West QLD	84	84	86	88	90	93
Emerald	498	514	569	621	671	722
Mackay	2,555	2,655	3,041	3,333	3,512	3,645
Whitsunday	905	919	1,022	1,109	1,178	1,240
Gladstone	1,537	1,573	1,728	1,891	2,076	2,273
Rockhampton	1,626	1,663	1,779	1,895	2,016	2,136
North Wide Bay	1,754	1,764	1,886	2,010	2,154	2,315
South Wide Bay	2,737	2,783	3,045	3,279	3,507	3,736
Darling Downs	1,353	1,376	1,481	1,594	1,701	1,810
South Central	402	403	415	429	439	447
South West QLD	46	46	46	46	46	46
SEQ North	11,663	11,793	12,821	13,666	14,298	14,823
SEQ South	10,096	10,304	11,766	13,310	14,902	16,526
Interstate	104	105	113	120	127	134
Queensland	42,797	43,516	47,962	52,097	55,912	59,628

	2010	2011	2016	2021	2026	2031
Increasing Incidence of Boats Scenario						
Cape York	338	344	389	442	490	542
North West QLD	360	382	392	418	445	480
Cairns	3,353	3,397	3,774	4,155	4,510	4,898
Townsville	3,464	3,573	4,249	4,890	5,400	5,911
Central West QLD	85	86	94	102	109	118
Emerald	509	537	663	806	936	1,081
Mackay	2,597	2,743	3,402	4,032	4,474	4,890
Whitsunday	922	953	1,163	1,383	1,561	1,747
Gladstone	1,577	1,656	2,063	2,559	3,054	3,638
Rockhampton	1,665	1,744	2,096	2,506	2,881	3,299
North Wide Bay	1,788	1,832	2,158	2,534	2,899	3,328
South Wide Bay	2,766	2,843	3,279	3,726	4,127	4,556
Darling Downs	1,377	1,424	1,669	1,962	2,216	2,503
South Central	415	430	521	634	723	820
South West QLD	47	47	50	53	55	58
SEQ North	11,743	11,960	13,480	14,889	15,954	16,935
SEQ South	11,156	11,495	13,779	16,355	18,913	21,658
Interstate	108	113	144	183	218	258
Queensland	44,269	45,559	53,364	61,628	68,966	76,718

Source: Economic Associates estimates

Boat Ramp Lane Demand

Converting peak demand estimates into boat ramp lane demand has been undertaken based on throughput rates of ramps. In SKM (1988) and Rose et. al. (2009), a rate of 30 boats per lane per day is considered to provide unhampered overall amenity, whereas a rate of 50 boats per lane per day represents congested operations.

It has been assumed that the midpoint between unhampered overall amenity (30 boats per lane per day) and congested operations (50 boats per lane per day) would represent the ideal scenario, as it balances the needs and wants of trailerable boat owners against the costs incurred by local governments, state governments and the private sector in providing boat ramps.

The results for the throughput rates of ramps under the unhampered overall amenity and congested operations scenarios have been presented in Appendix C.

By 2031, it is estimated that boat ramp lane demand will increase to between 1,491 lanes and 1,918 lanes, with SEQ North and SEQ South the key drivers of boat ramp lane demand.

Table 5.8 below provides a summary of boat ramp lane demand by recreational boating catchment under the peak demand scenario between 2010 and 2031.

Table 5.8: Boat Ramp Lane Demand by Recreational Boating Catchment – Peak Demand Scenario, 2010-2031

	2010	2011	2016	2021	2026	2031
Base Case Scenario						
Cape York	8	8	9	9	9	10
North West QLD	9	9	9	9	9	9
Cairns	83	84	89	95	100	106
Townsville	85	87	97	105	111	117
Central West QLD	2	2	2	2	2	2
Emerald	12	13	14	16	17	18
Mackay	64	66	76	83	88	91
Whitsunday	23	23	26	28	29	31
Gladstone	38	39	43	47	52	57

	2010	2011	2016	2021	2026	2031
Rockhampton	41	42	44	47	50	53
North Wide Bay	44	44	47	50	54	58
South Wide Bay	68	70	76	82	88	93
Darling Downs	34	34	37	40	43	45
South Central	10	10	10	11	11	11
South West QLD	1	1	1	1	1	1
SEQ North	292	295	321	342	357	371
SEQ South	252	258	294	333	373	413
Interstate	3	3	3	3	3	3
Queensland	1,070	1,088	1,199	1,302	1,398	1,491
Increasing Incidence of Boat Ownership Scenario						
Cape York	8	9	10	11	12	14
North West QLD	9	10	10	10	11	12
Cairns	84	85	94	104	113	122
Townsville	87	89	106	122	135	148
Central West QLD	2	2	2	3	3	3
Emerald	13	13	17	20	23	27
Mackay	65	69	85	101	112	122
Whitsunday	23	24	29	35	39	44
Gladstone	39	41	52	64	76	91
Rockhampton	42	44	52	63	72	82
North Wide Bay	45	46	54	63	72	83
South Wide Bay	69	71	82	93	103	114
Darling Downs	34	36	42	49	55	63
South Central	10	11	13	16	18	20
South West QLD	1	1	1	1	1	1
SEQ North	294	299	337	372	399	423
SEQ South	279	287	344	409	473	541
Interstate	3	3	4	5	5	6
Queensland	1,107	1,139	1,334	1,541	1,724	1,918

Source: Economic Associates estimates

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APPENDIX A

HISTORICAL BOAT REGISTRAIONS BY LENGTH

Table A.1: Historical Boat Registrations by Type, Length and Catchment, 2005-2009

	2005			2006			2007			2008			2009			Weighted Average		
	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total
CAPE YORK																		
< 3m	0	17	17	0	18	18	0	19	19	0	23	23	0	18	18	0.0%	1.2%	1.2%
3-5m	0	1,099	1,099	0	1,046	1,046	0	930	930	1	1,223	1,224	2	1,228	1,230	1.4%	71.1%	69.3%
5-8m	11	353	364	11	379	390	10	318	328	12	451	463	13	460	473	27.4%	25.2%	25.3%
8-10m	12	17	29	12	23	35	8	12	20	9	24	33	13	22	35	26.0%	1.3%	1.9%
10-12m	8	7	15	9	8	17	10	9	19	14	11	25	13	9	22	26.0%	0.6%	1.2%
12-15m	5	10	15	5	8	13	4	6	10	9	8	17	6	9	15	13.9%	0.5%	0.9%
15-25m	2	0	2	3	0	3	3	0	3	1	1	2	2	2	4	5.3%	0.0%	0.2%
>25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	38	1,503	1,541	40	1,482	1,522	35	1,294	1,329	46	1,741	1,787	49	1,748	1,797	100.0%	100.0%	100.0%
NORTH WEST QLD																		
< 3m	0	60	60	0	61	61	0	59	59	0	57	57	0	49	49	0.0%	3.4%	3.4%
3-5m	1	1,281	1,282	0	1,274	1,274	0	1,348	1,348	1	1,361	1,362	0	1,368	1,368	4.5%	78.8%	78.5%
5-8m	2	247	249	4	270	274	5	294	299	3	317	320	5	328	333	43.2%	17.3%	17.4%
8-10m	1	4	5	0	4	4	1	4	5	1	6	7	1	4	5	9.1%	0.3%	0.3%
10-12m	2	2	4	2	1	3	0	2	2	0	0	0	1	0	1	11.4%	0.1%	0.1%
12-15m	1	1	2	1	0	1	2	2	4	2	0	2	2	0	2	18.2%	0.0%	0.1%
15-25m	1	2	3	1	1	2	1	1	2	2	1	3	1	1	2	13.6%	0.1%	0.1%
>25m	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0.0%	0.0%	0.0%
Total	8	1,597	1,605	8	1,611	1,619	9	1,710	1,719	9	1,743	1,752	10	1,750	1,760	100.0%	100.0%	100.0%
CAIRNS																		
< 3m	3	524	527	2	496	498	1	485	486	1	483	484	2	463	465	0.3%	3.0%	3.0%
3-5m	25	11,082	11,107	26	11,389	11,415	28	11,936	11,964	32	12,172	12,204	37	12,432	12,469	5.7%	73.4%	71.3%
5-8m	144	2,905	3,049	144	3,096	3,240	154	3,478	3,632	152	3,778	3,930	138	4,034	4,172	28.2%	21.5%	21.7%
8-10m	114	143	257	114	149	263	116	168	284	129	167	296	126	171	297	23.0%	1.0%	1.7%
10-12m	109	69	178	112	66	178	117	63	180	139	74	213	145	83	228	23.9%	0.4%	1.2%
12-15m	59	54	113	60	62	122	75	62	137	83	72	155	107	84	191	14.8%	0.4%	0.9%
15-25m	15	23	38	20	30	50	25	37	62	25	42	67	21	44	65	4.1%	0.2%	0.3%
>25m	0	2	2	0	1	1	0	2	2	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	469	14,802	15,271	478	15,289	15,767	516	16,231	16,747	561	16,788	17,349	576	17,311	17,887	100.0%	100.0%	100.0%
TOWNSVILLE																		
< 3m	2	397	399	3	384	387	3	364	367	3	363	366	3	361	364	0.7%	2.3%	2.3%
3-5m	27	11,920	11,947	28	12,339	12,367	28	12,801	12,829	25	13,311	13,336	27	13,615	13,642	7.0%	79.8%	78.1%
5-8m	111	2,142	2,253	109	2,356	2,465	117	2,613	2,730	111	2,933	3,044	105	3,130	3,235	28.5%	16.4%	16.7%
8-10m	81	78	159	86	86	172	87	92	179	95	94	189	83	101	184	22.3%	0.6%	1.1%
10-12m	92	59	151	101	66	167	111	72	183	101	77	178	105	76	181	26.3%	0.4%	1.0%
12-15m	45	39	84	51	47	98	51	57	108	59	59	118	56	63	119	13.5%	0.3%	0.6%
15-25m	7	12	19	7	11	18	8	17	25	6	19	25	7	23	30	1.8%	0.1%	0.1%
>25m	0	1	1	0	0	0	0	1	1	0	3	3	0	3	3	0.0%	0.0%	0.0%

	2005			2006			2007			2008			2009			Weighted Average		
	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total
Total	365	14,648	15,013	385	15,289	15,674	405	16,017	16,422	400	16,859	17,259	386	17,372	17,758	100.0%	100.0%	100.0%
CENTRAL WEST QLD																		
< 3m	0	34	34	0	34	34	0	33	33	0	33	33	0	32	32	0.0%	8.2%	8.2%
3-5m	1	274	275	1	300	301	1	329	330	1	334	335	2	330	332	50.0%	77.8%	77.7%
5-8m	0	44	44	0	50	50	0	54	54	0	62	62	0	67	67	0.0%	13.8%	13.7%
8-10m	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0%	0.0%	0.0%
10-12m	1	0	1	2	0	2	0	0	0	0	0	0	1	0	1	33.3%	0.0%	0.2%
12-15m	0	0	0	0	0	0	0	1	1	1	0	1	1	1	2	16.7%	0.1%	0.2%
15-25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
>25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	2	352	354	3	384	387	1	417	418	2	429	431	4	431	435	100.0%	100.0%	100.0%
EMERALD																		
< 3m	0	95	95	0	96	96	0	98	98	0	91	91	0	89	89	0.0%	4.1%	4.1%
3-5m	2	1,543	1,545	3	1,618	1,621	2	1,658	1,660	4	1,693	1,697	2	1,784	1,786	13.3%	72.8%	72.2%
5-8m	5	404	409	7	460	467	6	511	517	7	558	565	6	625	631	31.6%	22.4%	22.5%
8-10m	5	11	16	4	12	16	5	13	18	2	8	10	2	9	11	18.4%	0.5%	0.6%
10-12m	5	0	5	5	1	6	6	5	11	5	1	6	5	1	6	26.5%	0.1%	0.3%
12-15m	1	1	2	2	2	4	2	3	5	2	2	4	3	3	6	10.2%	0.1%	0.2%
15-25m	0	1	1	0	1	1	0	1	1	0	1	1	0	4	4	0.0%	0.1%	0.1%
>25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	18	2,055	2,073	21	2,190	2,211	21	2,289	2,310	20	2,354	2,374	18	2,515	2,533	100.0%	100.0%	100.0%
MACKAY																		
< 3m	0	399	399	0	397	397	0	409	409	0	392	392	0	378	378	0.0%	3.4%	3.3%
3-5m	13	8,390	8,403	14	8,879	8,893	16	9,237	9,253	13	9,488	9,501	15	9,739	9,754	5.1%	77.6%	75.9%
5-8m	88	1,528	1,616	88	1,746	1,834	91	2,063	2,154	88	2,259	2,347	85	2,403	2,488	31.5%	17.0%	17.3%
8-10m	56	85	141	58	103	161	60	114	174	56	122	178	51	135	186	20.1%	0.9%	1.4%
10-12m	62	52	114	80	59	139	76	77	153	85	71	156	75	75	150	27.0%	0.6%	1.2%
12-15m	32	39	71	35	50	85	40	50	90	46	60	106	48	64	112	14.4%	0.4%	0.8%
15-25m	5	9	14	7	14	21	7	17	24	6	20	26	3	22	25	2.0%	0.1%	0.2%
>25m	0	2	2	0	1	1	0	2	2	0	1	1	0	1	1	0.0%	0.0%	0.0%
Total	256	10,504	10,760	282	11,249	11,531	290	11,969	12,259	294	12,413	12,707	277	12,817	13,094	100.0%	100.0%	100.0%
WHITSUNDAY																		
< 3m	0	114	114	0	104	104	0	113	113	0	108	108	0	108	108	0.0%	2.5%	2.3%
3-5m	7	2,821	2,828	6	2,940	2,946	6	3,091	3,097	5	3,221	3,226	4	3,322	3,326	1.5%	71.1%	65.4%
5-8m	74	746	820	68	816	884	73	909	982	82	1,011	1,093	79	1,071	1,150	19.7%	21.0%	20.9%
8-10m	105	63	168	105	83	188	94	86	180	83	100	183	89	100	189	24.9%	2.0%	3.9%
10-12m	107	50	157	111	56	167	107	65	172	118	68	186	118	62	180	29.4%	1.4%	3.7%
12-15m	57	45	102	65	51	116	73	58	131	72	59	131	83	57	140	18.3%	1.2%	2.6%
15-25m	18	24	42	20	24	44	23	31	54	27	36	63	24	43	67	5.9%	0.7%	1.1%
>25m	1	1	2	1	1	2	1	1	2	1	1	2	1	2	3	0.3%	0.0%	0.0%
Total	369	3,864	4,233	376	4,075	4,451	377	4,354	4,731	388	4,604	4,992	398	4,765	5,163	100.0%	100.0%	100.0%

	2005			2006			2007			2008			2009			Weighted Average		
	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total
ROCKHAMPTON																		
< 3m	0	268	268	0	276	276	0	263	263	0	254	254	1	246	247	0.1%	3.4%	3.3%
3-5m	12	5,204	5,216	13	5,462	5,475	10	5,744	5,754	9	5,958	5,967	11	6,140	6,151	5.2%	74.8%	72.9%
5-8m	60	1,157	1,217	62	1,290	1,352	59	1,434	1,493	59	1,596	1,655	58	1,704	1,762	28.0%	18.8%	19.1%
8-10m	51	89	140	62	94	156	68	103	171	68	117	185	67	119	186	29.7%	1.4%	2.1%
10-12m	45	59	104	52	60	112	52	72	124	44	83	127	48	86	134	22.7%	0.9%	1.5%
12-15m	30	30	60	27	33	60	30	39	69	28	44	72	29	52	81	13.5%	0.5%	0.9%
15-25m	2	2	4	2	3	5	1	6	7	1	5	6	2	7	9	0.8%	0.1%	0.1%
>25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	200	6,809	7,009	218	7,218	7,436	220	7,661	7,881	209	8,057	8,266	216	8,354	8,570	100.0%	100.0%	100.0%
GLADSTONE																		
< 3m	1	249	250	1	252	253	1	272	273	2	279	281	0	288	288	0.5%	3.8%	3.7%
3-5m	7	4,746	4,753	7	5,086	5,093	9	5,488	5,497	11	5,691	5,702	13	5,852	5,865	5.1%	76.3%	74.5%
5-8m	51	1,042	1,093	46	1,119	1,165	48	1,302	1,350	46	1,397	1,443	44	1,511	1,555	25.7%	18.1%	18.3%
8-10m	39	49	88	42	61	103	42	73	115	42	72	114	44	76	120	22.9%	0.9%	1.5%
10-12m	40	22	62	40	25	65	43	28	71	46	26	72	53	32	85	24.3%	0.4%	1.0%
12-15m	29	23	52	29	25	54	38	29	67	40	37	77	36	37	73	18.8%	0.4%	0.9%
15-25m	6	5	11	4	6	10	4	6	10	5	8	13	5	8	13	2.6%	0.1%	0.2%
>25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	173	6,136	6,309	169	6,574	6,743	185	7,198	7,383	192	7,510	7,702	195	7,804	7,999	100.0%	100.0%	100.0%
NORTH WIDE BAY																		
< 3m	0	275	275	0	290	290	0	298	298	0	273	273	0	281	281	0.0%	3.5%	3.4%
3-5m	10	6,283	6,293	15	6,600	6,615	17	6,993	7,010	18	7,294	7,312	18	7,545	7,563	8.0%	85.3%	83.5%
5-8m	49	693	742	48	735	783	55	814	869	52	905	957	50	972	1,022	25.9%	10.1%	10.5%
8-10m	25	31	56	28	34	62	34	36	70	43	36	79	47	37	84	18.0%	0.4%	0.8%
10-12m	37	23	60	44	24	68	59	25	84	65	24	89	64	26	90	27.4%	0.3%	0.9%
12-15m	22	21	43	27	22	49	36	22	58	38	26	64	39	28	67	16.5%	0.3%	0.7%
15-25m	5	8	13	7	6	13	7	7	14	8	6	14	9	8	17	3.7%	0.1%	0.2%
>25m	1	1	2	1	2	3	1	3	4	1	3	4	1	1	2	0.5%	0.0%	0.0%
Total	149	7,335	7,484	170	7,713	7,883	209	8,198	8,407	225	8,567	8,792	228	8,898	9,126	100.0%	100.0%	100.0%
SOUTH WIDE BAY																		
< 3m	1	402	403	2	387	389	1	407	408	1	418	419	1	412	413	0.3%	3.2%	3.1%
3-5m	33	9,225	9,258	32	9,614	9,646	34	10,088	10,122	35	10,521	10,556	34	10,844	10,878	7.4%	78.4%	76.0%
5-8m	137	1,741	1,878	145	1,908	2,053	137	2,085	2,222	151	2,249	2,400	151	2,335	2,486	31.6%	16.1%	16.6%
8-10m	100	130	230	103	131	234	110	153	263	120	165	285	118	165	283	24.1%	1.2%	2.0%
10-12m	88	59	147	99	72	171	100	77	177	113	84	197	111	88	199	22.4%	0.6%	1.3%
12-15m	48	33	81	47	37	84	56	51	107	63	66	129	69	73	142	12.4%	0.4%	0.8%
15-25m	4	16	20	7	16	23	10	19	29	11	20	31	10	22	32	1.8%	0.1%	0.2%
>25m	0	0	0	0	1	1	0	1	1	0	1	1	0	1	1	0.0%	0.0%	0.0%
Total	411	11,606	12,017	435	12,166	12,601	448	12,881	13,329	494	13,524	14,018	494	13,940	14,434	100.0%	100.0%	100.0%
DARLING DOWNS																		
< 3m	0	375	375	0	365	365	0	348	348	0	340	340	0	335	335	0.0%	5.6%	5.6%

	2005			2006			2007			2008			2009			Weighted Average		
	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total
3-5m	6	4,657	4,663	7	4,781	4,788	6	4,932	4,938	8	5,123	5,131	6	5,394	5,400	12.5%	79.1%	78.6%
5-8m	20	792	812	24	822	846	22	863	885	21	966	987	28	1,059	1,087	43.6%	14.3%	14.6%
8-10m	7	15	22	9	21	30	9	18	27	10	18	28	11	21	32	17.4%	0.3%	0.4%
10-12m	6	14	20	9	20	29	10	21	31	10	27	37	11	23	34	17.4%	0.3%	0.5%
12-15m	1	9	10	5	17	22	4	17	21	5	15	20	9	16	25	9.1%	0.2%	0.3%
15-25m	0	4	4	0	4	4	0	5	5	0	9	9	0	11	11	0.0%	0.1%	0.1%
>25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	40	5,866	5,906	54	6,030	6,084	51	6,204	6,255	54	6,498	6,552	65	6,859	6,924	100.0%	100.0%	100.0%
SOUTH CENTRAL																		
< 3m	1	129	130	1	129	130	1	118	119	2	122	124	2	122	124	15.9%	6.6%	6.6%
3-5m	2	1,307	1,309	2	1,396	1,398	1	1,464	1,465	1	1,527	1,528	1	1,567	1,568	15.9%	77.0%	76.7%
5-8m	4	235	239	3	284	287	5	297	302	3	321	324	5	365	370	45.5%	15.9%	16.1%
8-10m	2	7	9	2	5	7	2	5	7	1	6	7	1	6	7	18.2%	0.3%	0.4%
10-12m	0	1	1	0	2	2	0	1	1	0	2	2	0	1	1	0.0%	0.1%	0.1%
12-15m	1	2	3	1	1	2	0	0	0	0	1	1	0	2	2	4.5%	0.1%	0.1%
15-25m	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0.0%	0.1%	0.1%
>25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	10	1,682	1,692	9	1,818	1,827	9	1,886	1,895	7	1,980	1,987	9	2,064	2,073	100.0%	100.0%	100.0%
SOUTH WEST QLD																		
< 3m	0	18	18	0	17	17	0	20	20	0	22	22	0	23	23	0.0%	10.8%	10.8%
3-5m	0	103	103	0	121	121	0	127	127	0	167	167	1	176	177	100.0%	75.0%	75.1%
5-8m	0	18	18	0	21	21	0	20	20	0	28	28	0	37	37	0.0%	13.4%	13.4%
8-10m	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	0.0%	0.3%	0.3%
10-12m	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	0.0%	0.3%	0.3%
12-15m	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0%	0.1%	0.1%
15-25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
>25m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Total	0	139	139	0	159	159	0	169	169	0	219	219	1	239	240	100.0%	100.0%	100.0%
SEQ NORTH																		
< 3m	8	3,359	3,367	9	3,287	3,296	10	3,156	3,166	9	3,057	3,066	7	2,991	2,998	0.3%	5.6%	5.3%
3-5m	129	38,312	38,441	137	39,415	39,552	131	40,722	40,853	144	42,088	42,232	148	42,902	43,050	5.5%	71.4%	68.6%
5-8m	760	9,564	10,324	795	10,375	11,170	787	11,155	11,942	824	11,985	12,809	792	12,543	13,335	31.5%	19.5%	20.0%
8-10m	497	703	1,200	508	755	1,263	505	782	1,287	515	838	1,353	526	843	1,369	20.3%	1.4%	2.2%
10-12m	555	530	1,085	585	580	1,165	619	628	1,247	598	627	1,225	610	638	1,248	23.6%	1.1%	2.0%
12-15m	339	370	709	384	411	795	383	457	840	416	485	901	431	483	914	15.6%	0.8%	1.4%
15-25m	70	110	180	73	133	206	79	155	234	80	182	262	76	204	280	3.0%	0.3%	0.4%
>25m	3	11	14	3	11	14	3	13	16	4	13	17	2	12	14	0.1%	0.0%	0.0%
Total	2,361	52,959	55,320	2,494	54,967	57,461	2,517	57,068	59,585	2,590	59,275	61,865	2,592	60,616	63,208	100.0%	100.0%	100.0%
SEQ SOUTH																		
< 3m	8	3,833	3,841	10	3,695	3,705	13	3,630	3,643	13	3,561	3,574	10	3,477	3,487	0.7%	7.3%	7.1%
3-5m	78	28,448	28,526	90	29,783	29,873	103	31,127	31,230	127	32,732	32,859	122	34,151	34,273	6.8%	63.0%	61.4%
5-8m	474	10,241	10,715	502	11,084	11,586	527	11,714	12,241	535	12,477	13,012	502	12,661	13,163	33.1%	23.5%	23.8%

	2005			2006			2007			2008			2009			Weighted Average		
	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total	Sail	W/O Sail	Total
8-10m	297	1,089	1,386	297	1,172	1,469	311	1,200	1,511	327	1,217	1,544	345	1,240	1,585	20.6%	2.4%	2.9%
10-12m	296	814	1,110	308	857	1,165	315	868	1,183	340	944	1,284	345	930	1,275	20.9%	1.8%	2.4%
12-15m	202	609	811	208	643	851	216	655	871	224	690	914	229	710	939	14.1%	1.3%	1.7%
15-25m	61	199	260	58	255	313	59	291	350	57	325	382	54	340	394	3.8%	0.6%	0.7%
>25m	2	28	30	1	34	35	0	33	33	0	37	37	0	33	33	0.0%	0.1%	0.1%
Total	1,418	45,261	46,679	1,474	47,523	48,997	1,544	49,518	51,062	1,623	51,983	53,606	1,607	53,542	55,149	100.0%	100.0%	100.0%
INTERSTATE																		
< 3m	0	30	30	0	27	27	0	27	27	0	33	33	0	35	35	0.0%	5.5%	4.7%
3-5m	0	263	263	1	291	292	2	303	305	1	337	338	2	349	351	1.4%	55.4%	48.0%
5-8m	9	114	123	10	119	129	14	109	123	15	130	145	15	123	138	14.3%	21.4%	20.4%
8-10m	17	17	34	13	17	30	18	25	43	19	24	43	14	21	35	18.3%	3.7%	5.7%
10-12m	22	24	46	24	27	51	30	23	53	29	22	51	35	24	59	31.7%	4.3%	8.1%
12-15m	23	18	41	23	25	48	29	34	63	31	35	66	29	29	58	30.5%	5.1%	8.6%
15-25m	3	9	12	1	20	21	2	25	27	5	35	40	6	31	37	3.8%	4.3%	4.2%
>25m	0	3	3	0	2	2	0	2	2	0	2	2	0	1	1	0.0%	0.4%	0.3%
Total	74	478	552	72	528	600	95	548	643	100	618	718	101	613	714	100.0%	100.0%	100.0%
OVERSEAS																		
< 3m		0	0		0	0		0	0		1	1		1	1		8.7%	8.7%
3-5m		7	7		3	3		1	1		2	2		2	2		65.2%	65.2%
5-8m		0	0		1	1		0	0		2	2		1	1		17.4%	17.4%
8-10m		0	0		0	0		0	0		0	0		0	0		0.0%	0.0%
10-12m		0	0		0	0		0	0		0	0		1	1		4.3%	4.3%
12-15m		0	0		0	0		0	0		0	0		0	0		0.0%	0.0%
15-25m		0	0		1	1		0	0		0	0		0	0		4.3%	4.3%
>25m		0	0		0	0		0	0		0	0		0	0		0.0%	0.0%
Total		7	7		5	5		1	1		5	5		5	5	100.0%	100.0%	100.0%
QUEENSLAND																		
< 3m	24	10,578	10,602	28	10,315	10,343	30	10,119	10,149	31	9,910	9,941	26	9,709	9,735	0.4%	4.9%	4.8%
3-5m	353	136,965	137,318	382	142,337	142,719	394	148,319	148,713	436	154,243	154,679	445	158,740	159,185	5.8%	72.2%	70.0%
5-8m	1,999	33,966	35,965	2,066	36,931	38,997	2,110	40,033	42,143	2,161	43,425	45,586	2,076	45,429	47,505	30.2%	19.5%	19.8%
8-10m	1,409	2,531	3,940	1,443	2,750	4,193	1,470	2,885	4,355	1,520	3,015	4,535	1,538	3,072	4,610	21.4%	1.4%	2.0%
10-12m	1,475	1,785	3,260	1,583	1,924	3,507	1,655	2,037	3,692	1,707	2,142	3,849	1,740	2,156	3,896	23.7%	1.0%	1.7%
12-15m	895	1,304	2,199	970	1,434	2,404	1,039	1,543	2,582	1,119	1,659	2,778	1,177	1,712	2,889	15.1%	0.7%	1.2%
15-25m	199	425	624	210	526	736	229	619	848	234	711	945	220	771	991	3.2%	0.3%	0.4%
>25m	7	49	56	6	53	59	5	58	63	6	62	68	4	54	58	0.1%	0.0%	0.0%
Total	6,361	187,603	193,964	6,688	196,270	202,958	6,932	205,613	212,545	7,214	215,167	222,381	7,226	221,643	228,869	100.0%	100.0%	100.0%

Source: Maritime Safety Queensland

Table A.2: Estimated Size of the Trailerable Boat Fleet, 2005-2009

	Proportion Trailerable		2005			2006			2007			2008			2009		
	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	W/O Sail	Total
CAPE YORK																	
< 3m	100%	100%	0	17	17	0	18	18	0	19	19	0	23	23	0	18	18
3-5m	90%	85%	0	934	934	0	889	889	0	791	791	1	1,040	1,040	2	1,044	1,046
5-8m	50%	50%	6	177	182	6	190	195	5	159	164	6	226	232	7	230	237
8-10m	25%	0%	3	0	3	3	0	3	2	0	2	2	0	2	3	0	3
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			9	1,128	1,136	9	1,097	1,105	7	969	976	9	1,288	1,297	12	1,292	1,303
NORTH WEST QLD																	
< 3m	100%	100%	0	60	60	0	61	61	0	59	59	0	57	57	0	49	49
3-5m	90%	85%	1	1,089	1,090	0	1,083	1,083	0	1,146	1,146	1	1,157	1,158	0	1,163	1,163
5-8m	50%	50%	1	124	125	2	135	137	3	147	150	2	159	160	3	164	167
8-10m	25%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			2	1,272	1,275	2	1,279	1,281	3	1,352	1,355	3	1,372	1,375	3	1,376	1,379
CAIRNS																	
< 3m	100%	100%	3	524	527	2	496	498	1	485	486	1	483	484	2	463	465
3-5m	90%	85%	23	9,420	9,442	23	9,681	9,704	25	10,146	10,171	29	10,346	10,375	33	10,567	10,601
5-8m	50%	50%	72	1,453	1,525	72	1,548	1,620	77	1,739	1,816	76	1,889	1,965	69	2,017	2,086
8-10m	25%	0%	29	0	29	29	0	29	29	0	29	32	0	32	32	0	32
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			126	11,396	11,522	126	11,725	11,851	132	12,370	12,502	138	12,718	12,856	136	13,047	13,183
TOWNSVILLE																	
< 3m	100%	100%	2	397	399	3	384	387	3	364	367	3	363	366	3	361	364
3-5m	90%	85%	24	10,132	10,156	25	10,488	10,513	25	10,881	10,906	23	11,314	11,337	24	11,573	11,597
5-8m	50%	50%	56	1,071	1,127	55	1,178	1,233	59	1,307	1,365	56	1,467	1,522	53	1,565	1,618
8-10m	25%	0%	20	0	20	22	0	22	22	0	22	24	0	24	21	0	21
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Proportion Trailerable		2005			2006			2007			2008			2009		
	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	W/O Sail	Total
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			102	11,600	11,702	104	12,050	12,154	108	12,551	12,660	105	13,144	13,249	101	13,499	13,599
CENTRAL WEST QLD																	
< 3m	100%	100%	0	34	34	0	34	34	0	33	33	0	33	33	0	32	32
3-5m	90%	85%	1	233	234	1	255	256	1	280	281	1	284	285	2	281	282
5-8m	50%	50%	0	22	22	0	25	25	0	27	27	0	31	31	0	34	34
8-10m	25%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			1	289	290	1	314	315	1	340	341	1	348	349	2	346	348
EMERALD																	
< 3m	100%	100%	0	95	95	0	96	96	0	98	98	0	91	91	0	89	89
3-5m	90%	85%	2	1,312	1,313	3	1,375	1,378	2	1,409	1,411	4	1,439	1,443	2	1,516	1,518
5-8m	50%	50%	3	202	205	4	230	234	3	256	259	4	279	283	3	313	316
8-10m	25%	0%	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			6	1,609	1,614	7	1,701	1,709	6	1,763	1,769	8	1,809	1,817	5	1,918	1,923
MACKAY																	
< 3m	100%	100%	0	399	399	0	397	397	0	409	409	0	392	392	0	378	378
3-5m	90%	85%	12	7,132	7,143	13	7,547	7,560	14	7,851	7,866	12	8,065	8,077	14	8,278	8,292
5-8m	50%	50%	44	764	808	44	873	917	46	1,032	1,077	44	1,130	1,174	43	1,202	1,244
8-10m	25%	0%	14	0	14	15	0	15	15	0	15	14	0	14	13	0	13
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			70	8,295	8,364	71	8,817	8,888	75	9,292	9,367	70	9,586	9,656	69	9,858	9,926
WHITSUNDAY																	
< 3m	100%	100%	0	114	114	0	104	104	0	113	113	0	108	108	0	108	108
3-5m	90%	85%	6	2,398	2,404	5	2,499	2,504	5	2,627	2,633	5	2,738	2,742	4	2,824	2,827
5-8m	50%	50%	37	373	410	34	408	442	37	455	491	41	506	547	40	536	575
8-10m	25%	0%	26	0	26	26	0	26	24	0	24	21	0	21	22	0	22
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Proportion Trailerable		2005			2006			2007			2008			2009		
	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	W/O Sail	Total
Total			70	2,885	2,954	66	3,011	3,077	65	3,195	3,260	66	3,351	3,418	65	3,467	3,533
ROCKHAMPTON																	
< 3m	100%	100%	0	268	268	0	276	276	0	263	263	0	254	254	1	246	247
3-5m	90%	85%	11	4,423	4,434	12	4,643	4,654	9	4,882	4,891	8	5,064	5,072	10	5,219	5,229
5-8m	50%	50%	30	579	609	31	645	676	30	717	747	30	798	828	29	852	881
8-10m	25%	0%	13	0	13	16	0	16	17	0	17	17	0	17	17	0	17
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			54	5,270	5,323	58	5,564	5,622	56	5,862	5,918	55	6,116	6,171	57	6,317	6,374
GLADSTONE																	
< 3m	100%	100%	1	249	250	1	252	253	1	272	273	2	279	281	0	288	288
3-5m	90%	85%	6	4,034	4,040	6	4,323	4,329	8	4,665	4,673	10	4,837	4,847	12	4,974	4,986
5-8m	50%	50%	26	521	547	23	560	583	24	651	675	23	699	722	22	756	778
8-10m	25%	0%	10	0	10	11	0	11	11	0	11	11	0	11	11	0	11
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			43	4,804	4,847	41	5,135	5,175	44	5,588	5,631	45	5,815	5,860	45	6,018	6,062
NORTH WIDE BAY																	
< 3m	100%	100%	0	275	275	0	290	290	0	298	298	0	273	273	0	281	281
3-5m	90%	85%	9	5,341	5,350	14	5,610	5,624	15	5,944	5,959	16	6,200	6,216	16	6,413	6,429
5-8m	50%	50%	25	347	371	24	368	392	28	407	435	26	453	479	25	486	511
8-10m	25%	0%	6	0	6	7	0	7	9	0	9	11	0	11	12	0	12
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			40	5,962	6,002	45	6,268	6,312	51	6,649	6,700	53	6,925	6,978	53	7,180	7,233
SOUTH WIDE BAY																	
< 3m	100%	100%	1	402	403	2	387	389	1	407	408	1	418	419	1	412	413
3-5m	90%	85%	30	7,841	7,871	29	8,172	8,201	31	8,575	8,605	32	8,943	8,974	31	9,217	9,248
5-8m	50%	50%	69	871	939	73	954	1,027	69	1,043	1,111	76	1,125	1,200	76	1,168	1,243
8-10m	25%	0%	25	0	25	26	0	26	28	0	28	30	0	30	30	0	30
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			124	9,114	9,238	129	9,513	9,642	128	10,024	10,152	138	10,485	10,623	137	10,797	10,934

	Proportion Trailerable		2005			2006			2007			2008			2009		
	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	W/O Sail	Total
DARLING DOWNS																	
< 3m	100%	100%	0	375	375	0	365	365	0	348	348	0	340	340	0	335	335
3-5m	90%	85%	5	3,958	3,964	6	4,064	4,070	5	4,192	4,198	7	4,355	4,362	5	4,585	4,590
5-8m	50%	50%	10	396	406	12	411	423	11	432	443	11	483	494	14	530	544
8-10m	25%	0%	2	0	2	2	0	2	2	0	2	3	0	3	3	0	3
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			17	4,729	4,747	21	4,840	4,860	19	4,972	4,990	20	5,178	5,198	22	5,449	5,472
SOUTH CENTRAL																	
< 3m	100%	100%	1	129	130	1	129	130	1	118	119	2	122	124	2	122	124
3-5m	90%	85%	2	1,111	1,113	2	1,187	1,188	1	1,244	1,245	1	1,298	1,299	1	1,332	1,333
5-8m	50%	50%	2	118	120	2	142	144	3	149	151	2	161	162	3	183	185
8-10m	25%	0%	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			5	1,357	1,363	5	1,458	1,462	5	1,511	1,516	5	1,580	1,585	6	1,636	1,642
SOUTH WEST QLD																	
< 3m	100%	100%	0	18	18	0	17	17	0	20	20	0	22	22	0	23	23
3-5m	90%	85%	0	88	88	0	103	103	0	108	108	0	142	142	1	150	151
5-8m	50%	50%	0	9	9	0	11	11	0	10	10	0	14	14	0	19	19
8-10m	25%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			0	115	115	0	130	130	0	138	138	0	178	178	1	191	192
SEQ NORTH																	
< 3m	100%	100%	8	3,359	3,367	9	3,287	3,296	10	3,156	3,166	9	3,057	3,066	7	2,991	2,998
3-5m	90%	85%	116	32,565	32,681	123	33,503	33,626	118	34,614	34,732	130	35,775	35,904	133	36,467	36,600
5-8m	50%	50%	380	4,782	5,162	398	5,188	5,585	394	5,578	5,971	412	5,993	6,405	396	6,272	6,668
8-10m	25%	0%	124	0	124	127	0	127	126	0	126	129	0	129	132	0	132
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			628	40,706	41,335	657	41,977	42,634	648	43,347	43,995	679	44,824	45,504	668	45,729	46,397

	Proportion Trailerable		2005			2006			2007			2008			2009		
	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	Sail	W/O Sail	Total	Sail	W/O Sail	W/O Sail	Total
SEQ SOUTH																	
< 3m	100%	100%	8	3,833	3,841	10	3,695	3,705	13	3,630	3,643	13	3,561	3,574	10	3,477	3,487
3-5m	90%	85%	70	24,181	24,251	81	25,316	25,397	93	26,458	26,551	114	27,822	27,937	110	29,028	29,138
5-8m	50%	50%	237	5,121	5,358	251	5,542	5,793	264	5,857	6,121	268	6,239	6,506	251	6,331	6,582
8-10m	25%	0%	74	0	74	74	0	74	78	0	78	82	0	82	86	0	86
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			389	33,134	33,524	416	34,553	34,969	447	35,945	36,392	477	37,622	38,098	457	38,836	39,293
INTERSTATE																	
< 3m	100%	100%	0	30	30	0	27	27	0	27	27	0	33	33	0	35	35
3-5m	90%	85%	0	224	224	1	247	248	2	258	259	1	286	287	2	297	298
5-8m	50%	50%	5	57	62	5	60	65	7	55	62	8	65	73	8	62	69
8-10m	25%	0%	4	0	4	3	0	3	5	0	5	5	0	5	4	0	4
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			9	311	319	9	334	343	13	339	352	13	384	398	13	393	406
OVERSEAS																	
< 3m	100%	100%	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
3-5m	90%	85%	0	6	6	0	3	3	0	1	1	0	2	2	0	2	2
5-8m	50%	50%	0	0	0	0	1	1	0	0	0	0	1	1	0	1	1
8-10m	25%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-12m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			0	6	6	0	3	3	0	1	1	0	4	4	0	3	3
QUEENSLAND																	
< 3m			24	10,578	10,602	28	10,315	10,343	30	10,119	10,149	31	9,910	9,941	26	9,709	9,735
3-5m			318	116,420	116,738	344	120,986	121,330	355	126,071	126,426	392	131,107	131,499	401	134,929	135,330
5-8m			1,000	16,983	17,983	1,033	18,466	19,499	1,055	20,017	21,072	1,081	21,713	22,793	1,038	22,715	23,753
8-10m			352	0	352	361	0	361	368	0	368	380	0	380	385	0	385
10-12m			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-15m			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-25m			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>25m			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			1,693	143,981	145,675	1,766	149,767	151,533	1,807	156,207	158,014	1,884	162,729	164,613	1,849	167,353	169,202

APPENDIX B

PROJECTED BOAT REGISTRATIONS BY LENGTH

Table B.1: Projected Boat Registrations by Type, Length and Catchment, Base Case Scenario, 2010-2031

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
CAPE YORK								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	2	1.4%	2	2	2	2	2	2
5-8 metres	13	27.4%	13	13	13	14	15	15
8-10 metres	13	26.0%	13	13	13	14	14	15
10-12 metres	13	26.0%	13	13	13	14	14	15
12-15 metres	6	13.9%	6	6	6	6	7	7
15-25 metres	2	5.3%	2	2	2	2	2	2
>25 metres	0	0.0%	0	0	0	0	0	0
Total	49	100.0%	49	49	51	53	55	57
Boats w/o sails								
<3 metres	18	1.2%	18	18	19	20	21	22
3-5 metres	1,228	71.1%	1,229	1,229	1,271	1,322	1,380	1,437
5-8 metres	460	25.2%	460	460	475	493	514	534
8-10 metres	22	1.3%	22	22	23	24	25	26
10-12 metres	9	0.6%	9	9	9	10	10	11
12-15 metres	9	0.5%	9	9	9	10	10	11
15-25 metres	2	0.0%	2	2	2	2	2	2
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,748	100.0%	1,749	1,750	1,808	1,880	1,962	2,042
Total Boats								
<3 metres	18	1.2%	18	18	19	20	21	22
3-5 metres	1,230	69.3%	1,231	1,231	1,273	1,324	1,383	1,440
5-8 metres	473	25.3%	473	474	489	507	529	549
8-10 metres	35	1.9%	35	35	36	38	39	41
10-12 metres	22	1.2%	22	22	23	24	25	26
12-15 metres	15	0.9%	15	15	16	16	17	18
15-25 metres	4	0.2%	4	4	4	4	4	5
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,797	100.0%	1,798	1,799	1,859	1,933	2,017	2,099
NORTH WEST QLD								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	0	4.5%	0	0	0	0	0	0
5-8 metres	5	43.2%	5	5	5	5	5	5
8-10 metres	1	9.1%	1	1	1	1	1	1
10-12 metres	1	11.4%	1	1	1	1	1	1
12-15 metres	2	18.2%	2	2	2	2	2	2
15-25 metres	1	13.6%	1	1	1	1	1	1
>25 metres	0	0.0%	0	0	0	0	0	0
Total	10	100.0%	10	11	10	10	11	11
Boats w/o sails								
<3 metres	49	3.4%	52	54	52	52	53	56
3-5 metres	1,368	78.8%	1430	1495	1441	1441	1471	1519
5-8 metres	328	17.3%	342	356	344	344	351	361
8-10 metres	4	0.3%	4	4	4	4	4	5
10-12 metres	0	0.1%	0	0	0	0	0	0
12-15 metres	0	0.0%	0	0	0	0	0	0
15-25 metres	1	0.1%	1	1	1	1	1	1
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,750	100.0%	1,829	1,911	1,842	1,842	1,880	1,941
Total Boats								
<3 metres	49	3.4%	52	54	52	52	53	56

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
3-5 metres	1,368	78.5%	1,430	1,495	1,441	1,441	1,471	1,519
5-8 metres	333	17.4%	347	361	349	349	356	367
8-10 metres	5	0.3%	5	5	5	5	5	6
10-12 metres	1	0.1%	1	1	1	1	1	1
12-15 metres	2	0.1%	2	2	2	2	2	2
15-25 metres	2	0.1%	2	2	2	2	2	2
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,760	100.0%	1,839	1,922	1,852	1,853	1,891	1,952
CAIRNS								
Sail Boat								
<3 metres	2	0.3%	2	2	2	2	2	3
3-5 metres	37	5.7%	37	37	40	42	44	46
5-8 metres	138	28.2%	139	140	151	161	172	183
8-10 metres	126	23.0%	127	127	137	145	153	163
10-12 metres	145	23.9%	146	147	156	165	174	183
12-15 metres	107	14.8%	107	108	114	119	125	130
15-25 metres	21	4.1%	21	21	23	24	26	27
>25 metres	0	0.0%	0	0	0	0	0	0
Total	576	100.0%	579	582	622	658	695	735
Boats w/o sails								
<3 metres	463	3.0%	466	469	506	540	575	613
3-5 metres	12,432	73.4%	12,504	12,577	13,467	14,292	15,136	16,042
5-8 metres	4,034	21.5%	4,055	4,077	4,337	4,579	4,826	5,092
8-10 metres	171	1.0%	172	173	185	196	208	220
10-12 metres	83	0.4%	83	84	89	94	99	105
12-15 metres	84	0.4%	84	85	90	95	99	104
15-25 metres	44	0.2%	44	44	47	50	52	55
>25 metres	0	0.0%	0	0	0	0	0	0
Total	17,311	100.0%	17,410	17,509	18,721	19,845	20,996	22,230
Total Boats								
<3 metres	465	3.0%	468	471	508	543	578	615
3-5 metres	12,469	71.3%	12,542	12,614	13,506	14,333	15,180	16,088
5-8 metres	4,172	21.7%	4,194	4,216	4,488	4,740	4,998	5,274
8-10 metres	297	1.7%	299	300	321	341	361	382
10-12 metres	228	1.2%	229	230	245	259	273	288
12-15 metres	191	0.9%	192	193	204	214	224	235
15-25 metres	65	0.3%	65	66	70	74	78	82
>25 metres	0	0.0%	0	0	0	0	0	0
Total	17,887	100.0%	17,989	18,091	19,342	20,503	21,692	22,965
TOWNSVILLE								
Sail Boat								
<3 metres	3	0.7%	3	3	3	4	4	4
3-5 metres	27	7.0%	28	28	32	34	36	38
5-8 metres	105	28.5%	107	109	124	135	144	151
8-10 metres	83	22.3%	85	86	98	106	113	119
10-12 metres	105	26.3%	107	109	122	132	141	148
12-15 metres	56	13.5%	57	58	65	70	74	78
15-25 metres	7	1.8%	7	7	8	9	9	10
>25 metres	0	0.0%	0	0	0	0	0	0
Total	386	100.0%	394	402	452	490	521	549
Boats w/o sails								
<3 metres	361	2.3%	368	376	424	462	491	518
3-5 metres	13,615	79.8%	13,870	14,131	15,779	17,060	18,072	18,977
5-8 metres	3,130	16.4%	3,183	3,236	3,576	3,839	4,048	4,234
8-10 metres	101	0.6%	103	105	116	125	132	139
10-12 metres	76	0.4%	77	79	88	95	100	105
12-15 metres	63	0.3%	64	65	72	77	81	85
15-25 metres	23	0.1%	23	24	26	27	29	30

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
>25 metres	3	0.0%	3	3	3	3	4	4
Total	17,372	100.0%	17,692	18,018	20,084	21,689	22,957	24,092
Total Boats								
<3 metres	364	2.3%	372	379	428	465	495	522
3-5 metres	13,642	78.1%	13,898	14,159	15,811	17,094	18,108	19,016
5-8 metres	3,235	16.7%	3,290	3,346	3,699	3,974	4,191	4,385
8-10 metres	184	1.1%	188	191	214	232	246	258
10-12 metres	181	1.0%	184	188	210	227	241	253
12-15 metres	119	0.6%	121	123	137	147	156	163
15-25 metres	30	0.1%	30	31	34	36	38	40
>25 metres	3	0.0%	3	3	3	3	4	4
Total	17,758	100.0%	18,086	18,420	20,536	22,179	23,479	24,641
CENTRAL WEST								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	2	50.0%	2	2	2	2	2	2
5-8 metres	0	0.0%	0	0	0	0	0	0
8-10 metres	0	0.0%	0	0	0	0	0	0
10-12 metres	1	33.3%	1	1	1	1	1	1
12-15 metres	1	16.7%	1	1	1	1	1	1
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	4	100.0%	4	4	4	4	4	4
Boats w/o sails								
<3 metres	32	8.2%	32	32	33	33	34	36
3-5 metres	330	77.8%	330	329	337	344	353	366
5-8 metres	67	13.8%	67	67	68	69	71	73
8-10 metres	1	0.0%	1	1	1	1	1	1
10-12 metres	0	0.0%	0	0	0	0	0	0
12-15 metres	1	0.1%	1	1	1	1	1	1
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	431	100.0%	431	430	440	449	461	477
Total Boats								
<3 metres	32	8.2%	32	32	33	33	34	36
3-5 metres	332	77.7%	332	331	339	346	355	368
5-8 metres	67	13.7%	67	67	68	69	71	73
8-10 metres	1	0.0%	1	1	1	1	1	1
10-12 metres	1	0.2%	1	1	1	1	1	1
12-15 metres	2	0.2%	2	2	2	2	2	2
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	435	100.0%	435	434	444	453	465	481
EMERALD								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	2	13.3%	2	2	3	3	3	3
5-8 metres	6	31.6%	6	6	7	8	9	9
8-10 metres	2	18.4%	2	2	3	3	4	4
10-12 metres	5	26.5%	5	5	6	7	7	8
12-15 metres	3	10.2%	3	3	3	4	4	4
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	18	100.0%	19	19	22	24	26	29
Boats w/o sails								
<3 metres	89	4.1%	92	96	107	119	129	140
3-5 metres	1,784	72.8%	1,841	1,900	2,108	2,307	2,496	2,686

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
5-8 metres	625	22.4%	643	661	725	786	844	903
8-10 metres	9	0.5%	9	10	11	12	14	15
10-12 metres	1	0.1%	1	1	1	2	2	2
12-15 metres	3	0.1%	3	3	3	4	4	4
15-25 metres	4	0.1%	4	4	4	5	5	5
>25 metres	0	0.0%	0	0	0	0	0	0
Total	2,515	100.0%	2,593	2,674	2,960	3,233	3,493	3,754
Total Boats								
<3 metres	89	4.1%	92	96	107	119	129	140
3-5 metres	1,786	72.2%	1,843	1,902	2,111	2,309	2,499	2,689
5-8 metres	631	22.5%	649	667	732	794	853	912
8-10 metres	11	0.6%	11	12	14	15	17	19
10-12 metres	6	0.3%	6	6	7	8	9	10
12-15 metres	6	0.2%	6	6	7	7	8	8
15-25 metres	4	0.1%	4	4	4	5	5	5
>25 metres	0	0.0%	0	0	0	0	0	0
Total	2,533	100.0%	2,612	2,694	2,982	3,257	3,519	3,783
MACKAY								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	15	5.1%	16	16	19	20	22	22
5-8 metres	85	31.5%	89	93	108	119	126	131
8-10 metres	51	20.1%	53	56	65	73	77	80
10-12 metres	75	27.0%	78	82	94	104	110	114
12-15 metres	48	14.4%	50	51	58	63	67	69
15-25 metres	3	2.0%	3	3	4	5	6	6
>25 metres	0	0.0%	0	0	0	0	0	0
Total	277	100.0%	289	301	349	385	407	423
Boats w/o sails								
<3 metres	378	3.4%	395	412	479	530	561	584
3-5 metres	9,739	77.6%	10,126	10,528	12,079	13,253	13,973	14,510
5-8 metres	2,403	17.0%	2,488	2,576	2,915	3,171	3,329	3,446
8-10 metres	135	0.9%	140	145	164	178	187	193
10-12 metres	75	0.6%	78	81	92	101	106	110
12-15 metres	64	0.4%	66	69	77	84	88	91
15-25 metres	22	0.1%	23	23	26	28	30	31
>25 metres	1	0.0%	1	1	1	2	2	2
Total	12,817	100.0%	13,316	13,834	15,833	17,347	18,274	18,967
Total Boats								
<3 metres	378	3.3%	395	412	479	530	561	584
3-5 metres	9,754	75.9%	10,141	10,544	12,098	13,274	13,994	14,532
5-8 metres	2,488	17.3%	2,576	2,668	3,022	3,290	3,454	3,577
8-10 metres	186	1.4%	193	200	229	251	264	274
10-12 metres	150	1.2%	156	162	186	205	216	224
12-15 metres	112	0.8%	116	120	136	148	155	160
15-25 metres	25	0.2%	26	27	31	33	35	36
>25 metres	1	0.0%	1	1	1	2	2	2
Total	13,094	100.0%	13,604	14,135	16,182	17,732	18,681	19,390
WHITSUNDAY								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	4	1.5%	4	4	5	5	6	6
5-8 metres	79	19.7%	80	82	91	99	105	111
8-10 metres	89	24.9%	91	92	104	114	122	130
10-12 metres	118	29.4%	120	122	136	148	157	166
12-15 metres	83	18.3%	84	85	94	102	108	113
15-25 metres	24	5.9%	24	25	28	30	32	34
>25 metres	1	0.3%	1	1	1	1	1	1

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
Total	398	100.0%	404	411	459	500	532	562
Boats w/o sails								
<3 metres	108	2.5%	110	112	126	137	146	155
3-5 metres	3,322	71.1%	3,374	3,428	3,817	4,146	4,405	4,642
5-8 metres	1,071	21.0%	1,086	1,102	1,217	1,315	1,391	1,461
8-10 metres	100	2.0%	101	103	114	123	130	137
10-12 metres	62	1.4%	63	64	72	78	83	88
12-15 metres	57	1.2%	58	59	66	71	76	80
15-25 metres	43	0.7%	44	44	48	51	54	57
>25 metres	2	0.0%	2	2	2	2	2	3
Total	4,765	100.0%	4,839	4,914	5,462	5,925	6,289	6,623
Total Boats								
<3 metres	108	2.3%	110	112	126	137	146	155
3-5 metres	3,326	65.4%	3,378	3,432	3,822	4,152	4,411	4,649
5-8 metres	1,150	20.9%	1,167	1,184	1,309	1,414	1,497	1,573
8-10 metres	189	3.9%	192	195	218	238	253	267
10-12 metres	180	3.7%	183	186	208	226	241	254
12-15 metres	140	2.6%	142	144	160	173	184	193
15-25 metres	67	1.1%	68	69	76	81	86	90
>25 metres	3	0.0%	3	3	3	4	4	4
Total	5,163	100.0%	5,243	5,325	5,921	6,425	6,821	7,184
GLADSTONE								
Sail Boat								
<3 metres	0	0.5%	0	0	0	0	0	1
3-5 metres	13	5.1%	13	13	15	16	17	18
5-8 metres	44	25.7%	45	46	52	57	64	71
8-10 metres	44	22.9%	45	46	51	56	62	68
10-12 metres	53	24.3%	54	55	60	66	72	78
12-15 metres	36	18.8%	37	38	42	46	51	56
15-25 metres	5	2.6%	5	5	6	6	7	8
>25 metres	0	0.0%	0	0	0	0	0	0
Total	195	100.0%	200	205	226	247	272	299
Boats w/o sails								
<3 metres	288	3.8%	295	302	333	365	401	440
3-5 metres	5,852	76.3%	5992	6136	6749	7393	8121	8901
5-8 metres	1,511	18.1%	1544	1578	1724	1876	2049	2234
8-10 metres	76	0.9%	78	80	87	95	104	114
10-12 metres	32	0.4%	33	33	36	40	43	47
12-15 metres	37	0.4%	38	39	42	46	50	54
15-25 metres	8	0.1%	8	8	9	10	11	12
>25 metres	0	0.0%	0	0	0	0	0	0
Total	7,804	100.0%	7,988	8,176	8,980	9,824	10,779	11,802
Total Boats								
<3 metres	288	3.7%	295	302	333	365	402	441
3-5 metres	5,865	74.5%	6,006	6,150	6,764	7,408	8,138	8,920
5-8 metres	1,555	18.3%	1,590	1,625	1,776	1,934	2,113	2,305
8-10 metres	120	1.5%	123	126	138	151	166	181
10-12 metres	85	1.0%	87	89	97	105	115	125
12-15 metres	73	0.9%	75	76	84	92	100	110
15-25 metres	13	0.2%	13	14	15	16	18	19
>25 metres	0	0.0%	0	0	0	0	0	0
Total	7,999	100.0%	8,188	8,381	9,206	10,072	11,051	12,101
ROCKHAMPTON								
Sail Boat								
<3 metres	1	0.1%	1	1	1	1	1	1
3-5 metres	11	5.2%	11	12	12	13	14	15
5-8 metres	58	28.0%	59	61	66	70	75	80

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
8-10 metres	67	29.7%	69	70	75	80	85	91
10-12 metres	48	22.7%	49	50	54	58	62	66
12-15 metres	29	13.5%	30	30	33	35	37	40
15-25 metres	2	0.8%	2	2	2	2	2	3
>25 metres	0	0.0%	0	0	0	0	0	0
Total	216	100.0%	221	227	244	260	278	296
Boats w/o sails								
<3 metres	246	3.4%	252	259	280	301	322	344
3-5 metres	6,140	74.8%	6,281	6,425	6,879	7,331	7,804	8,274
5-8 metres	1,704	18.8%	1,740	1,776	1,890	2,004	2,123	2,242
8-10 metres	119	1.4%	122	124	133	141	149	158
10-12 metres	86	0.9%	88	90	95	101	107	113
12-15 metres	52	0.5%	53	54	57	60	64	67
15-25 metres	7	0.1%	7	7	8	8	8	9
>25 metres	0	0.0%	0	0	0	0	0	0
Total	8,354	100.0%	8,542	8,735	9,341	9,946	10,577	11,206
Total Boats								
<3 metres	247	3.3%	253	260	281	302	323	345
3-5 metres	6,151	72.9%	6,292	6,437	6,891	7,344	7,818	8,289
5-8 metres	1,762	19.1%	1,799	1,837	1,956	2,075	2,198	2,322
8-10 metres	186	2.1%	190	194	208	221	235	249
10-12 metres	134	1.5%	137	140	150	159	169	179
12-15 metres	81	0.9%	83	84	90	95	101	107
15-25 metres	9	0.1%	9	9	10	10	11	11
>25 metres	0	0.0%	0	0	0	0	0	0
Total	8,570	100.0%	8,764	8,962	9,585	10,206	10,855	11,502
NORTH WIDE BAY								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	18	8.0%	18	18	19	21	22	24
5-8 metres	50	25.9%	50	51	54	58	63	68
8-10 metres	47	18.0%	47	47	50	53	56	60
10-12 metres	64	27.4%	64	65	69	73	78	83
12-15 metres	39	16.5%	39	39	42	44	47	51
15-25 metres	9	3.7%	9	9	10	10	11	12
>25 metres	1	0.5%	1	1	1	1	1	1
Total	228	100.0%	229	230	245	261	278	298
Boats w/o sails								
<3 metres	281	3.5%	283	284	306	328	354	382
3-5 metres	7,545	85.3%	7,587	7,629	8,158	8,696	9,321	10,023
5-8 metres	972	10.1%	977	982	1,045	1,109	1,183	1,266
8-10 metres	37	0.4%	37	37	40	43	46	49
10-12 metres	26	0.3%	26	26	28	30	32	35
12-15 metres	28	0.3%	28	28	30	32	34	36
15-25 metres	8	0.1%	8	8	9	9	10	10
>25 metres	1	0.0%	1	1	1	1	2	2
Total	8,898	100.0%	8,947	8,997	9,617	10,248	10,981	11,805
Total Boats								
<3 metres	281	3.4%	283	284	306	328	354	382
3-5 metres	7,563	83.5%	7,605	7,647	8,177	8,717	9,343	10,047
5-8 metres	1,022	10.5%	1,027	1,033	1,099	1,167	1,246	1,334
8-10 metres	84	0.8%	84	85	90	96	102	109
10-12 metres	90	0.9%	90	91	97	103	110	118
12-15 metres	67	0.7%	67	68	72	76	81	87
15-25 metres	17	0.2%	17	17	18	19	21	22
>25 metres	2	0.0%	2	2	2	2	3	3
Total	9,126	100.0%	9,176	9,227	9,862	10,509	11,259	12,103

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
SOUTH WIDE BAY								
Sail Boat								
<3 metres	1	0.3%	1	1	1	1	1	2
3-5 metres	34	7.4%	35	35	39	42	45	48
5-8 metres	151	31.6%	154	156	172	185	198	212
8-10 metres	118	24.1%	120	122	134	144	154	164
10-12 metres	111	22.4%	113	115	126	135	145	154
12-15 metres	69	12.4%	70	71	77	82	88	93
15-25 metres	10	1.8%	10	10	11	12	13	14
>25 metres	0	0.0%	0	0	0	0	0	0
Total	494	100.0%	502	511	559	602	644	686
Boats w/o sails								
<3 metres	412	3.2%	419	427	470	508	545	582
3-5 metres	10,844	78.4%	11,029	11,216	12,286	13,227	14,157	15,076
5-8 metres	2,335	16.1%	2,373	2,411	2,631	2,824	3,015	3,203
8-10 metres	165	1.2%	168	171	186	200	214	228
10-12 metres	88	0.6%	89	91	99	106	113	120
12-15 metres	73	0.4%	74	75	80	85	90	95
15-25 metres	22	0.1%	22	23	25	26	28	30
>25 metres	1	0.0%	1	1	1	1	1	1
Total	13,940	100.0%	14,175	14,415	15,779	16,978	18,164	19,335
Total Boats								
<3 metres	413	3.1%	420	428	471	509	547	584
3-5 metres	10,878	76.0%	11,063	11,252	12,325	13,269	14,202	15,124
5-8 metres	2,486	16.6%	2,527	2,568	2,803	3,009	3,213	3,415
8-10 metres	283	2.0%	288	293	320	344	368	392
10-12 metres	199	1.3%	202	206	225	241	258	274
12-15 metres	142	0.8%	144	146	158	168	178	188
15-25 metres	32	0.2%	32	33	36	38	41	43
>25 metres	1	0.0%	1	1	1	1	1	1
Total	14,434	100.0%	14,678	14,926	16,338	17,580	18,808	20,021
DARLING DOWNS								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	6	12.5%	6	6	7	7	8	9
5-8 metres	28	43.6%	28	29	31	33	35	37
8-10 metres	11	17.4%	11	11	12	13	14	15
10-12 metres	11	17.4%	11	11	12	13	14	15
12-15 metres	9	9.1%	9	9	10	10	10	11
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	65	100.0%	66	67	71	76	81	86
Boats w/o sails								
<3 metres	335	5.6%	341	348	378	411	442	473
3-5 metres	5,394	79.1%	5484	5575	6001	6460	6898	7340
5-8 metres	1,059	14.3%	1075	1092	1169	1252	1331	1411
8-10 metres	21	0.3%	21	22	23	25	27	28
10-12 metres	23	0.3%	23	24	26	27	29	31
12-15 metres	16	0.2%	16	17	18	19	20	22
15-25 metres	11	0.1%	11	11	12	12	13	14
>25 metres	0	0.0%	0	0	0	0	0	0
Total	6,859	100.0%	6,972	7,087	7,627	8,207	8,760	9,319
Total Boats								
<3 metres	335	5.6%	341	348	378	411	442	473
3-5 metres	5,400	78.6%	5,490	5,581	6,008	6,468	6,906	7,348
5-8 metres	1,087	14.6%	1,104	1,121	1,200	1,285	1,366	1,448
8-10 metres	32	0.4%	33	33	35	38	40	43
10-12 metres	34	0.5%	35	35	38	40	43	46

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
12-15 metres	25	0.3%	25	26	27	29	31	33
15-25 metres	11	0.1%	11	11	12	12	13	14
>25 metres	0	0.0%	0	0	0	0	0	0
Total	6,924	100.0%	7,038	7,154	7,698	8,283	8,841	9,404
SOUTH CENTRAL								
Sail Boat								
<3 metres	2	15.9%	2	2	2	2	2	2
3-5 metres	1	15.9%	1	1	1	1	1	1
5-8 metres	5	45.5%	5	5	5	5	5	6
8-10 metres	1	18.2%	1	1	1	1	1	1
10-12 metres	0	0.0%	0	0	0	0	0	0
12-15 metres	0	4.5%	0	0	0	0	0	0
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	9	100.0%	9	9	9	10	10	10
Boats w/o sails								
<3 metres	122	6.6%	122	123	127	131	135	138
3-5 metres	1,567	77.0%	1,570	1,574	1,622	1,677	1,718	1,749
5-8 metres	365	15.9%	366	366	376	388	396	403
8-10 metres	6	0.3%	6	6	6	6	7	7
10-12 metres	1	0.1%	1	1	1	1	1	1
12-15 metres	2	0.1%	2	2	2	2	2	2
15-25 metres	1	0.1%	1	1	1	1	1	1
>25 metres	0	0.0%	0	0	0	0	0	0
Total	2,064	100.0%	2,068	2,073	2,136	2,207	2,260	2,301
Total Boats								
<3 metres	124	6.6%	124	125	129	134	137	140
3-5 metres	1,568	76.7%	1,571	1,575	1,623	1,678	1,719	1,750
5-8 metres	370	16.1%	371	371	382	393	402	408
8-10 metres	7	0.4%	7	7	7	8	8	8
10-12 metres	1	0.1%	1	1	1	1	1	1
12-15 metres	2	0.1%	2	2	2	2	2	2
15-25 metres	1	0.1%	1	1	1	1	1	1
>25 metres	0	0.0%	0	0	0	0	0	0
Total	2,073	100.0%	2,077	2,082	2,145	2,217	2,270	2,311
SOUTH WEST QLD								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	1	100.0%	1	1	1	1	1	1
5-8 metres	0	0.0%	0	0	0	0	0	0
8-10 metres	0	0.0%	0	0	0	0	0	0
10-12 metres	0	0.0%	0	0	0	0	0	0
12-15 metres	0	0.0%	0	0	0	0	0	0
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1	100.0%	1	1	1	1	1	1
Boats w/o sails								
<3 metres	23	10.8%	23	23	23	23	23	23
3-5 metres	176	75.0%	175	174	174	175	175	176
5-8 metres	37	13.4%	37	37	37	37	37	37
8-10 metres	1	0.3%	1	1	1	1	1	1
10-12 metres	1	0.3%	1	1	1	1	1	1
12-15 metres	1	0.1%	1	1	1	1	1	1
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	239	100.0%	238	237	237	237	238	238
Total Boats								

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
<3 metres	23	10.8%	23	23	23	23	23	23
3-5 metres	177	75.1%	176	175	175	176	176	177
5-8 metres	37	13.4%	37	37	37	37	37	37
8-10 metres	1	0.3%	1	1	1	1	1	1
10-12 metres	1	0.3%	1	1	1	1	1	1
12-15 metres	1	0.1%	1	1	1	1	1	1
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	240	100.0%	239	238	238	238	239	239
SEQ NORTH								
Sail Boat								
<3 metres	7	0.3%	7	7	8	9	9	10
3-5 metres	148	5.5%	150	151	164	175	183	190
5-8 metres	792	31.5%	801	811	887	947	994	1031
8-10 metres	526	20.3%	532	538	587	626	656	680
10-12 metres	610	23.6%	617	624	681	726	761	789
12-15 metres	431	15.6%	436	440	478	508	531	549
15-25 metres	76	3.0%	77	78	85	91	95	99
>25 metres	2	0.1%	2	2	2	3	3	3
Total	2,592	100.0%	2,622	2,652	2,892	3,084	3,232	3,351
Boats w/o sails								
<3 metres	2,991	5.6%	3,029	3,066	3,370	3,612	3,799	3,949
3-5 metres	42,902	71.4%	43,383	43,870	47,764	50,877	53,269	55,204
5-8 metres	12,543	19.5%	12,675	12,808	13,872	14,723	15,377	15,906
8-10 metres	843	1.4%	852	862	937	997	1,043	1,080
10-12 metres	638	1.1%	645	652	710	756	791	820
12-15 metres	483	0.8%	488	494	536	569	595	616
15-25 metres	204	0.3%	206	208	223	235	244	251
>25 metres	12	0.0%	12	12	13	14	15	16
Total	60,616	100.0%	61,290	61,972	67,424	71,783	75,133	77,843
Total Boats								
<3 metres	2,998	5.3%	3,036	3,074	3,378	3,621	3,808	3,959
3-5 metres	43,050	68.6%	43,533	44,022	47,928	51,052	53,452	55,394
5-8 metres	13,335	20.0%	13,476	13,619	14,759	15,670	16,371	16,938
8-10 metres	1,369	2.2%	1,384	1,400	1,524	1,623	1,699	1,760
10-12 metres	1,248	2.0%	1,262	1,276	1,391	1,482	1,552	1,609
12-15 metres	914	1.4%	924	934	1,013	1,077	1,126	1,165
15-25 metres	280	0.4%	283	286	308	326	339	350
>25 metres	14	0.0%	14	14	16	17	18	19
Total	63,208	100.0%	63,912	64,624	70,316	74,867	78,365	81,194
SEQ SOUTH								
Sail Boat								
<3 metres	10	0.7%	10	10	12	14	16	18
3-5 metres	122	6.8%	124	127	143	161	179	197
5-8 metres	502	33.1%	513	525	606	691	780	870
8-10 metres	345	20.6%	352	359	409	463	517	573
10-12 metres	345	20.9%	352	359	411	465	520	577
12-15 metres	229	14.1%	234	239	273	309	347	385
15-25 metres	54	3.8%	55	57	66	76	86	96
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,607	100.0%	1,641	1,676	1,920	2,179	2,445	2,717
Boats w/o sails								
<3 metres	3,477	7.3%	3,558	3,640	4,221	4,834	5,467	6,112
3-5 metres	34,151	63.0%	34,844	35,551	40,539	45,804	51,235	56,775
5-8 metres	12,661	23.5%	12,919	13,182	15,040	17,000	19,022	21,085
8-10 metres	1,240	2.4%	1,266	1,293	1,482	1,681	1,887	2,097
10-12 metres	930	1.8%	950	970	1,110	1,259	1,413	1,569
12-15 metres	710	1.3%	725	740	845	957	1,072	1,189

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
15-25 metres	340	0.6%	346	353	398	445	494	544
>25 metres	33	0.1%	34	34	40	45	51	57
Total	53,542	100.0%	54,641	55,763	63,675	72,026	80,640	89,427
Total Boats								
<3 metres	3,487	7.1%	3,568	3,651	4,233	4,848	5,483	6,130
3-5 metres	34,273	61.4%	34,968	35,678	40,682	45,965	51,414	56,972
5-8 metres	13,163	23.8%	13,432	13,707	15,645	17,691	19,802	21,955
8-10 metres	1,585	2.9%	1,618	1,652	1,891	2,144	2,405	2,670
10-12 metres	1,275	2.4%	1,302	1,329	1,521	1,724	1,933	2,146
12-15 metres	939	1.7%	958	978	1,118	1,266	1,419	1,574
15-25 metres	394	0.7%	402	409	463	521	580	640
>25 metres	33	0.1%	34	35	40	46	51	57
Total	55,149	100.0%	56,282	57,438	65,595	74,205	83,085	92,144
INTERSTATE								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	2	1.4%	2	2	2	2	2	2
5-8 metres	15	14.3%	15	15	16	17	18	19
8-10 metres	14	18.3%	14	15	16	17	18	20
10-12 metres	35	31.7%	35	36	38	40	43	45
12-15 metres	29	30.5%	29	30	32	34	36	38
15-25 metres	6	3.8%	6	6	6	7	7	7
>25 metres	0	0.0%	0	0	0	0	0	0
Total	101	100.0%	102	104	111	118	125	132
Boats w/o sails								
<3 metres	35	5.5%	35	36	38	41	43	46
3-5 metres	349	55.4%	354	359	383	408	433	456
5-8 metres	123	21.4%	125	127	136	146	155	164
8-10 metres	21	3.7%	21	22	23	25	27	28
10-12 metres	24	4.3%	24	25	27	29	30	32
12-15 metres	29	5.1%	29	30	32	34	37	39
15-25 metres	31	4.3%	31	32	34	36	37	39
>25 metres	1	0.4%	1	1	1	1	2	2
Total	613	100.0%	622	631	675	720	764	806
Total Boats								
<3 metres	35	4.7%	35	36	38	41	43	46
3-5 metres	351	48.0%	356	361	386	410	435	458
5-8 metres	138	20.4%	140	142	153	163	174	184
8-10 metres	35	5.7%	36	36	39	42	45	48
10-12 metres	59	8.1%	60	61	65	69	73	77
12-15 metres	58	8.6%	59	60	64	69	73	77
15-25 metres	37	4.2%	37	38	40	42	44	47
>25 metres	1	0.3%	1	1	1	1	2	2
Total	714	100.0%	724	734	786	838	889	938
QUEENSLAND								
Sail Boat								
<3 metres	26	0.4%	26	27	30	33	37	39
3-5 metres	445	6.2%	452	459	505	548	588	626
5-8 metres	2,076	28.7%	2,111	2,148	2,388	2,607	2,808	3,000
8-10 metres	1,538	21.3%	1,563	1,588	1,756	1,909	2,049	2,183
10-12 metres	1,740	24.1%	1,767	1,795	1,981	2,148	2,300	2,444
12-15 metres	1,177	16.3%	1,194	1,212	1,330	1,437	1,534	1,627
15-25 metres	220	3.0%	224	227	252	276	297	318
>25 metres	4	0.1%	4	4	5	5	6	6
Total	7,226	100.0%	7,342	7,460	8,247	8,963	9,618	10,244
Boats w/o sails								
<3 metres	9,708	4.4%	9,891	10,077	11,291	12,446	13,542	14,611

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
3-5 metres	158,738	71.6%	161,404	164,127	180,854	196,212	210,416	224,153
5-8 metres	45,428	20.5%	46,153	46,894	51,577	55,956	60,063	64,056
8-10 metres	3,072	1.4%	3,125	3,179	3,536	3,878	4,205	4,525
10-12 metres	2,155	1.0%	2,192	2,230	2,485	2,729	2,962	3,189
12-15 metres	1,712	0.8%	1,740	1,769	1,962	2,148	2,325	2,498
15-25 metres	771	0.3%	782	794	871	947	1,019	1,090
>25 metres	54	0.0%	55	56	64	71	78	86
Total	221,638	100.0%	225,342	229,126	252,641	274,387	294,610	314,208
Total Boats								
<3 metres	9,734	4.3%	9,917	10,104	11,321	12,480	13,578	14,651
3-5 metres	159,183	69.6%	161,855	164,586	181,360	196,760	211,004	224,779
5-8 metres	47,504	20.8%	48,265	49,041	53,964	58,562	62,870	67,056
8-10 metres	4,610	2.0%	4,688	4,768	5,293	5,787	6,254	6,708
10-12 metres	3,895	1.7%	3,960	4,026	4,466	4,877	5,261	5,633
12-15 metres	2,889	1.3%	2,935	2,981	3,292	3,584	3,859	4,126
15-25 metres	991	0.4%	1,006	1,021	1,124	1,222	1,316	1,408
>25 metres	58	0.0%	59	60	68	76	84	92
Total	228,864	100.0%	232,684	236,586	260,888	283,349	304,227	324,453

Source: Economic Associates estimates

Table B.2: Projected Boat Registrations by Type, Length and Catchment, Increasing Incidence of Boat Ownership Scenario, 2010-2031

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
CAPE YORK								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	2	1.4%	2	2	2	2	3	3
5-8 metres	13	27.4%	14	14	18	22	26	31
8-10 metres	13	26.0%	13	14	17	22	25	30
10-12 metres	13	26.0%	13	14	17	22	25	30
12-15 metres	6	13.9%	6	7	8	11	13	15
15-25 metres	2	5.3%	2	2	3	4	5	5
>25 metres	0	0.0%	0	0	0	0	0	0
Total	49	100.0%	51	53	66	82	97	114
Boats w/o sails								
<3 metres	18	1.2%	18	19	22	25	28	31
3-5 metres	1,228	71.1%	1,250	1,273	1,439	1,637	1,817	2,010
5-8 metres	460	25.2%	468	476	535	605	669	738
8-10 metres	22	1.3%	22	23	26	29	32	36
10-12 metres	9	0.6%	9	9	11	12	14	15
12-15 metres	9	0.5%	9	9	11	12	13	15
15-25 metres	2	0.0%	2	2	2	2	2	2
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,748	100.0%	1,779	1,811	2,045	2,324	2,576	2,848
Total Boats								
<3 metres	18	1.2%	18	19	22	25	28	31
3-5 metres	1,230	69.3%	1,252	1,275	1,441	1,640	1,820	2,013
5-8 metres	473	25.3%	481	490	552	627	695	768
8-10 metres	35	1.9%	36	37	43	51	58	66
10-12 metres	22	1.2%	23	23	28	34	39	45
12-15 metres	15	0.9%	15	16	19	23	26	30
15-25 metres	4	0.2%	4	4	5	6	7	8
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,797	100.0%	1,830	1,864	2,110	2,406	2,673	2,962
NORTH WEST QLD								

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	0	4.5%	0	0	0	0	0	1
5-8 metres	5	43.2%	5	6	7	8	9	10
8-10 metres	1	9.1%	1	1	1	2	2	2
10-12 metres	1	11.4%	1	1	1	2	2	2
12-15 metres	2	18.2%	2	2	3	3	4	4
15-25 metres	1	13.6%	1	1	2	2	2	3
>25 metres	0	0.0%	0	0	0	0	0	0
Total	10	100.0%	11	12	14	16	19	22
Boats w/o sails								
<3 metres	49	3.4%	53	56	58	62	67	73
3-5 metres	1,368	78.8%	1450	1538	1577	1681	1791	1931
5-8 metres	328	17.3%	346	365	374	397	421	452
8-10 metres	4	0.3%	4	5	5	5	5	6
10-12 metres	0	0.1%	0	0	0	0	0	0
12-15 metres	0	0.0%	0	0	0	0	0	0
15-25 metres	1	0.1%	1	1	1	1	1	2
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,750	100.0%	1,854	1,965	2,015	2,147	2,287	2,465
Total Boats								
<3 metres	49	3.4%	53	56	58	62	67	73
3-5 metres	1,368	78.5%	1,450	1,538	1,577	1,681	1,792	1,932
5-8 metres	333	17.4%	351	371	381	404	430	462
8-10 metres	5	0.3%	5	6	6	7	7	8
10-12 metres	1	0.1%	1	1	2	2	2	3
12-15 metres	2	0.1%	2	2	3	3	4	4
15-25 metres	2	0.1%	2	2	3	3	4	4
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1,760	100.0%	1,865	1,977	2,029	2,163	2,306	2,487
CAIRNS								
Sail Boat								
<3 metres	2	0.3%	2	2	2	3	3	3
3-5 metres	37	5.7%	38	38	44	50	55	62
5-8 metres	138	28.2%	142	145	173	203	229	260
8-10 metres	126	23.0%	129	132	154	179	201	225
10-12 metres	145	23.9%	148	151	175	200	223	248
12-15 metres	107	14.8%	109	111	125	141	155	171
15-25 metres	21	4.1%	22	22	26	30	34	39
>25 metres	0	0.0%	0	0	0	0	0	0
Total	576	100.0%	589	602	699	806	901	1,008
Boats w/o sails								
<3 metres	463	3.0%	470	477	536	597	653	714
3-5 metres	12,432	73.4%	12,599	12,767	14,200	15,649	16,997	18,472
5-8 metres	4,034	21.5%	4,083	4,132	4,552	4,977	5,372	5,804
8-10 metres	171	1.0%	173	176	195	215	233	253
10-12 metres	83	0.4%	84	85	94	102	110	119
12-15 metres	84	0.4%	85	86	94	102	110	118
15-25 metres	44	0.2%	44	45	49	54	58	62
>25 metres	0	0.0%	0	0	0	0	0	1
Total	17,311	100.0%	17,538	17,768	19,720	21,695	23,532	25,543
Total Boats								
<3 metres	465	3.0%	472	479	540	602	659	722
3-5 metres	12,469	71.3%	12,640	12,813	14,274	15,756	17,133	18,642
5-8 metres	4,172	21.7%	4,224	4,277	4,722	5,174	5,593	6,053
8-10 metres	297	1.7%	301	305	340	375	407	443
10-12 metres	228	1.2%	231	234	258	282	305	330
12-15 metres	191	0.9%	193	195	213	231	248	266

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
15-25 metres	65	0.3%	66	67	74	81	87	94
>25 metres	0	0.0%	0	0	0	0	0	1
Total	17,887	100.0%	18,127	18,370	20,420	22,500	24,433	26,550
TOWNSVILLE								
Sail Boat								
<3 metres	3	0.7%	3	3	3	3	3	4
3-5 metres	27	7.0%	27	28	29	30	31	32
5-8 metres	105	28.5%	106	107	115	119	122	125
8-10 metres	83	22.3%	84	85	91	94	97	98
10-12 metres	105	26.3%	106	107	114	118	121	123
12-15 metres	56	13.5%	57	57	61	63	64	65
15-25 metres	7	1.8%	7	7	8	8	8	8
>25 metres	0	0.0%	0	0	0	0	0	0
Total	386	100.0%	390	394	420	435	447	455
Boats w/o sails								
<3 metres	361	2.3%	374	387	469	546	608	669
3-5 metres	13,615	79.8%	14,054	14,507	17,298	19,948	22,057	24,169
5-8 metres	3,130	16.4%	3,220	3,314	3,888	4,434	4,868	5,303
8-10 metres	101	0.6%	104	107	127	146	161	175
10-12 metres	76	0.4%	78	81	96	111	122	134
12-15 metres	63	0.3%	65	67	78	89	98	107
15-25 metres	23	0.1%	24	24	28	31	34	37
>25 metres	3	0.0%	3	3	3	4	4	4
Total	17,372	100.0%	17,922	18,489	21,988	25,309	27,952	30,598
Total Boats								
<3 metres	364	2.3%	377	390	472	549	611	673
3-5 metres	13,642	78.1%	14,081	14,534	17,328	19,979	22,088	24,201
5-8 metres	3,235	16.7%	3,326	3,421	4,003	4,553	4,990	5,428
8-10 metres	184	1.1%	188	192	218	239	257	274
10-12 metres	181	1.0%	184	188	210	228	243	257
12-15 metres	119	0.6%	121	124	139	152	162	172
15-25 metres	30	0.1%	31	31	35	39	42	45
>25 metres	3	0.0%	3	3	3	4	4	4
Total	17,758	100.0%	18,312	18,883	22,408	25,743	28,398	31,054
CENTRAL WEST								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	2	50.0%	2	2	2	2	2	2
5-8 metres	0	0.0%	0	0	0	0	0	0
8-10 metres	0	0.0%	0	0	0	0	0	0
10-12 metres	1	33.3%	1	1	1	1	1	1
12-15 metres	1	16.7%	1	1	1	1	1	1
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	4	100.0%	4	4	4	4	5	5
Boats w/o sails								
<3 metres	32	8.2%	32	33	36	39	42	46
3-5 metres	330	77.8%	334	337	368	400	428	463
5-8 metres	67	13.8%	68	68	74	79	84	90
8-10 metres	1	0.0%	1	1	1	1	1	1
10-12 metres	0	0.0%	0	0	0	0	0	0
12-15 metres	1	0.1%	1	1	1	1	1	1
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	431	100.0%	436	440	480	520	557	602
Total Boats								
<3 metres	32	8.2%	32	33	36	39	42	46

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
3-5 metres	332	77.7%	336	339	370	402	431	465
5-8 metres	67	13.7%	68	68	74	79	84	90
8-10 metres	1	0.0%	1	1	1	1	1	1
10-12 metres	1	0.2%	1	1	1	1	1	1
12-15 metres	2	0.2%	2	2	2	2	2	2
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	435	100.0%	440	444	484	525	562	607
EMERALD								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	2	13.3%	2	2	2	2	2	2
5-8 metres	6	31.6%	6	6	6	6	6	7
8-10 metres	2	18.4%	2	2	2	2	2	2
10-12 metres	5	26.5%	5	5	5	5	5	5
12-15 metres	3	10.2%	3	3	3	3	3	3
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	18	100.0%	18	19	19	19	20	20
Boats w/o sails								
<3 metres	89	4.1%	95	101	127	158	186	217
3-5 metres	1,784	72.8%	1,884	1,989	2,464	3,007	3,498	4,045
5-8 metres	625	22.4%	656	688	835	1,002	1,153	1,322
8-10 metres	9	0.5%	10	10	13	17	20	23
10-12 metres	1	0.1%	1	1	2	2	3	3
12-15 metres	3	0.1%	3	3	4	5	5	6
15-25 metres	4	0.1%	4	4	5	5	6	6
>25 metres	0	0.0%	0	0	0	0	0	0
Total	2,515	100.0%	2,652	2,796	3,450	4,196	4,871	5,623
Total Boats								
<3 metres	89	4.1%	95	101	127	158	186	217
3-5 metres	1,786	72.2%	1,886	1,991	2,467	3,009	3,500	4,047
5-8 metres	631	22.5%	662	694	841	1,008	1,160	1,329
8-10 metres	11	0.6%	12	12	16	19	22	26
10-12 metres	6	0.3%	6	6	7	7	8	9
12-15 metres	6	0.2%	6	6	7	8	8	9
15-25 metres	4	0.1%	4	4	5	5	6	6
>25 metres	0	0.0%	0	0	0	0	0	0
Total	2,533	100.0%	2,670	2,815	3,469	4,215	4,890	5,643
MACKAY								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	15	5.1%	15	16	18	19	19	19
5-8 metres	85	31.5%	88	91	101	107	110	112
8-10 metres	51	20.1%	53	55	61	65	67	68
10-12 metres	75	27.0%	77	80	89	94	97	98
12-15 metres	48	14.4%	49	51	55	58	59	60
15-25 metres	3	2.0%	3	3	4	4	5	5
>25 metres	0	0.0%	0	0	0	0	0	0
Total	277	100.0%	286	295	327	347	357	362
Boats w/o sails								
<3 metres	378	3.4%	402	428	542	652	730	802
3-5 metres	9,739	77.6%	10,297	10,886	13,546	16,093	17,880	19,560
5-8 metres	2,403	17.0%	2,525	2,654	3,235	3,792	4,183	4,550
8-10 metres	135	0.9%	142	149	182	213	235	255
10-12 metres	75	0.6%	79	83	103	121	134	147
12-15 metres	64	0.4%	67	71	86	101	111	120
15-25 metres	22	0.1%	23	24	29	33	37	40

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
>25 metres	1	0.0%	1	1	2	2	2	3
Total	12,817	100.0%	13,536	14,295	17,724	21,007	23,311	25,477
Total Boats								
<3 metres	378	3.3%	402	428	542	652	730	802
3-5 metres	9,754	75.9%	10,312	10,902	13,563	16,111	17,899	19,579
5-8 metres	2,488	17.3%	2,613	2,745	3,336	3,899	4,293	4,662
8-10 metres	186	1.4%	195	204	243	278	302	323
10-12 metres	150	1.2%	157	163	191	215	231	245
12-15 metres	112	0.8%	117	121	141	159	170	181
15-25 metres	25	0.2%	26	27	33	38	41	44
>25 metres	1	0.0%	1	1	2	2	2	3
Total	13,094	100.0%	13,822	14,591	18,051	21,354	23,668	25,839
WHITSUNDAY								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	4	1.5%	4	4	5	5	5	5
5-8 metres	79	19.7%	80	80	87	91	94	97
8-10 metres	89	24.9%	90	91	99	104	109	112
10-12 metres	118	29.4%	119	120	129	136	141	145
12-15 metres	83	18.3%	84	84	90	94	97	100
15-25 metres	24	5.9%	24	24	26	28	29	29
>25 metres	1	0.3%	1	1	1	1	1	1
Total	398	100.0%	402	405	437	458	476	491
Boats w/o sails								
<3 metres	108	2.5%	112	116	145	175	199	224
3-5 metres	3,322	71.1%	3,439	3,560	4,362	5,205	5,885	6,599
5-8 metres	1,071	21.0%	1,106	1,141	1,379	1,628	1,829	2,040
8-10 metres	100	2.0%	103	107	129	153	172	192
10-12 metres	62	1.4%	64	67	82	99	112	126
12-15 metres	57	1.2%	59	61	75	90	102	114
15-25 metres	43	0.7%	44	45	54	62	69	77
>25 metres	2	0.0%	2	2	2	3	3	3
Total	4,765	100.0%	4,930	5,100	6,229	7,415	8,372	9,376
Total Boats								
<3 metres	108	2.3%	112	116	145	175	199	224
3-5 metres	3,326	65.4%	3,443	3,564	4,367	5,210	5,891	6,604
5-8 metres	1,150	20.9%	1,185	1,222	1,465	1,719	1,924	2,137
8-10 metres	189	3.9%	193	197	228	257	280	304
10-12 metres	180	3.7%	183	187	212	235	253	271
12-15 metres	140	2.6%	143	145	165	184	199	214
15-25 metres	67	1.1%	68	70	80	90	98	106
>25 metres	3	0.0%	3	3	4	4	4	5
Total	5,163	100.0%	5,331	5,506	6,665	7,873	8,848	9,867
GLADSTONE								
Sail Boat								
<3 metres	0	0.5%	0	0	0	0	0	1
3-5 metres	13	5.1%	13	14	15	16	17	19
5-8 metres	44	25.7%	45	47	53	59	66	74
8-10 metres	44	22.9%	45	46	52	57	64	70
10-12 metres	53	24.3%	54	56	61	67	74	81
12-15 metres	36	18.8%	37	38	42	47	52	58
15-25 metres	5	2.6%	5	5	6	7	7	8
>25 metres	0	0.0%	0	0	0	0	0	0
Total	195	100.0%	200	206	229	254	281	310
Boats w/o sails								
<3 metres	288	3.8%	303	318	399	497	595	711
3-5 metres	5,852	76.3%	6,150	6,463	8,077	10,044	12,010	14,323

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
5-8 metres	1,511	18.1%	1,582	1,656	2,039	2,505	2,972	3,520
8-10 metres	76	0.9%	80	84	103	128	152	180
10-12 metres	32	0.4%	33	35	43	53	62	74
12-15 metres	37	0.4%	39	40	50	61	72	85
15-25 metres	8	0.1%	8	9	11	13	16	18
>25 metres	0	0.0%	0	0	0	0	0	0
Total	7,804	100.0%	8,195	8,605	10,722	13,300	15,878	18,911
Total Boats								
<3 metres	288	3.7%	303	319	399	497	596	711
3-5 metres	5,865	74.5%	6,163	6,476	8,092	10,060	12,028	14,342
5-8 metres	1,555	18.3%	1,627	1,703	2,091	2,564	3,038	3,594
8-10 metres	120	1.5%	125	130	155	185	216	251
10-12 metres	85	1.0%	88	91	104	120	136	155
12-15 metres	73	0.9%	76	78	92	108	124	142
15-25 metres	13	0.2%	14	14	17	20	23	26
>25 metres	0	0.0%	0	0	0	0	0	0
Total	7,999	100.0%	8,395	8,810	10,950	13,554	16,159	19,221
ROCKHAMPTON								
Sail Boat								
<3 metres	1	0.1%	1	1	1	1	1	1
3-5 metres	11	5.2%	11	12	12	13	14	15
5-8 metres	58	28.0%	59	61	65	69	74	78
8-10 metres	67	29.7%	68	70	74	79	84	88
10-12 metres	48	22.7%	49	50	54	57	61	64
12-15 metres	29	13.5%	30	30	32	34	37	39
15-25 metres	2	0.8%	2	2	2	2	2	3
>25 metres	0	0.0%	0	0	0	0	0	0
Total	216	100.0%	221	226	241	256	272	287
Boats w/o sails								
<3 metres	246	3.4%	260	274	337	411	479	554
3-5 metres	6,140	74.8%	6,435	6,744	8,127	9,741	11,216	12,858
5-8 metres	1,704	18.8%	1,778	1,856	2,205	2,611	2,983	3,396
8-10 metres	119	1.4%	124	130	155	185	212	242
10-12 metres	86	0.9%	90	94	111	131	150	171
12-15 metres	52	0.5%	54	56	66	77	87	99
15-25 metres	7	0.1%	7	7	9	10	11	12
>25 metres	0	0.0%	0	0	0	0	0	0
Total	8,354	100.0%	8,749	9,162	11,010	13,167	15,138	17,333
Total Boats								
<3 metres	247	3.3%	261	275	338	412	480	555
3-5 metres	6,151	72.9%	6,446	6,756	8,139	9,755	11,230	12,873
5-8 metres	1,762	19.1%	1,838	1,917	2,270	2,680	3,056	3,474
8-10 metres	186	2.1%	193	200	230	264	296	330
10-12 metres	134	1.5%	139	144	165	189	211	235
12-15 metres	81	0.9%	84	87	98	111	124	137
15-25 metres	9	0.1%	9	10	11	12	14	15
>25 metres	0	0.0%	0	0	0	0	0	0
Total	8,570	100.0%	8,969	9,388	11,250	13,423	15,409	17,620
NORTH WIDE BAY								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	18	8.0%	19	21	30	44	58	76
5-8 metres	50	25.9%	54	58	89	134	179	239
8-10 metres	47	18.0%	50	53	74	105	137	179
10-12 metres	64	27.4%	68	73	106	153	200	264
12-15 metres	39	16.5%	42	44	64	92	121	159
15-25 metres	9	3.7%	10	10	15	21	27	36
>25 metres	1	0.5%	1	1	2	3	4	5

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
Total	228	100.0%	244	261	380	552	726	958
Boats w/o sails								
<3 metres	281	3.5%	289	296	353	419	483	557
3-5 metres	7,545	85.3%	7,731	7,921	9,318	10,923	12,482	14,306
5-8 metres	972	10.1%	994	1,017	1,182	1,373	1,558	1,774
8-10 metres	37	0.4%	38	39	46	54	62	71
10-12 metres	26	0.3%	27	27	32	38	43	50
12-15 metres	28	0.3%	29	29	34	40	45	51
15-25 metres	8	0.1%	8	8	10	11	13	15
>25 metres	1	0.0%	1	1	2	2	2	3
Total	8,898	100.0%	9,116	9,339	10,977	12,860	14,687	16,827
Total Boats								
<3 metres	281	3.4%	289	296	353	419	483	557
3-5 metres	7,563	83.5%	7,750	7,942	9,348	10,967	12,539	14,382
5-8 metres	1,022	10.5%	1,048	1,075	1,272	1,507	1,737	2,013
8-10 metres	84	0.8%	88	92	120	159	199	250
10-12 metres	90	0.9%	95	100	138	191	244	314
12-15 metres	67	0.7%	70	74	98	132	166	211
15-25 metres	17	0.2%	18	19	24	32	40	51
>25 metres	2	0.0%	2	2	3	5	6	8
Total	9,126	100.0%	9,360	9,600	11,357	13,412	15,413	17,785
SOUTH WIDE BAY								
Sail Boat								
<3 metres	1	0.3%	1	1	1	2	2	2
3-5 metres	34	7.4%	35	36	42	48	54	59
5-8 metres	151	31.6%	155	160	185	211	235	260
8-10 metres	118	24.1%	121	125	144	164	182	201
10-12 metres	111	22.4%	114	117	135	154	170	188
12-15 metres	69	12.4%	71	72	83	93	102	112
15-25 metres	10	1.8%	10	11	12	14	15	16
>25 metres	0	0.0%	0	0	0	0	0	0
Total	494	100.0%	508	522	603	685	759	838
Boats w/o sails								
<3 metres	412	3.2%	424	437	509	581	647	716
3-5 metres	10,844	78.4%	11,148	11,460	13,246	15,039	16,680	18,402
5-8 metres	2,335	16.1%	2,397	2,461	2,828	3,196	3,532	3,886
8-10 metres	165	1.2%	169	174	201	227	251	277
10-12 metres	88	0.6%	90	93	106	120	132	145
12-15 metres	73	0.4%	75	76	85	95	103	112
15-25 metres	22	0.1%	23	23	26	30	33	36
>25 metres	1	0.0%	1	1	1	1	1	2
Total	13,940	100.0%	14,327	14,726	17,002	19,288	21,380	23,576
Total Boats								
<3 metres	413	3.1%	425	438	510	582	649	718
3-5 metres	10,878	76.0%	11,183	11,496	13,288	15,087	16,733	18,462
5-8 metres	2,486	16.6%	2,553	2,621	3,013	3,407	3,767	4,145
8-10 metres	283	2.0%	291	299	345	391	433	478
10-12 metres	199	1.3%	204	210	242	273	302	333
12-15 metres	142	0.8%	145	149	168	187	205	224
15-25 metres	32	0.2%	33	34	38	43	48	52
>25 metres	1	0.0%	1	1	1	1	1	2
Total	14,434	100.0%	14,835	15,248	17,605	19,973	22,139	24,414
DARLING DOWNS								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	6	12.5%	7	8	13	23	32	45
5-8 metres	28	43.6%	31	34	54	86	119	163

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
8-10 metres	11	17.4%	12	13	21	34	47	65
10-12 metres	11	17.4%	12	13	21	34	47	65
12-15 metres	9	9.1%	10	10	14	21	28	37
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	65	100.0%	71	78	125	198	273	375
Boats w/o sails								
<3 metres	335	5.6%	348	362	432	515	588	669
3-5 metres	5,394	79.1%	5579	5771	6769	7935	8972	10106
5-8 metres	1,059	14.3%	1093	1127	1308	1519	1706	1911
8-10 metres	21	0.3%	22	22	26	30	34	39
10-12 metres	23	0.3%	24	25	29	34	38	43
12-15 metres	16	0.2%	17	17	20	24	27	30
15-25 metres	11	0.1%	11	11	13	14	16	17
>25 metres	0	0.0%	0	0	0	0	0	0
Total	6,859	100.0%	7,093	7,335	8,597	10,071	11,382	12,815
Total Boats								
<3 metres	335	5.6%	348	362	432	515	588	669
3-5 metres	5,400	78.6%	5,586	5,779	6,782	7,958	9,004	10,150
5-8 metres	1,087	14.6%	1,123	1,161	1,362	1,605	1,825	2,074
8-10 metres	32	0.4%	34	36	48	65	82	104
10-12 metres	34	0.5%	36	38	50	68	85	108
12-15 metres	25	0.3%	26	27	35	45	55	67
15-25 metres	11	0.1%	11	11	13	14	16	17
>25 metres	0	0.0%	0	0	0	0	0	0
Total	6,924	100.0%	7,165	7,414	8,721	10,269	11,654	13,189
SOUTH CENTRAL								
Sail Boat								
<3 metres	2	15.9%	2	2	2	2	2	2
3-5 metres	1	15.9%	1	1	1	1	1	1
5-8 metres	5	45.5%	5	5	4	4	4	4
8-10 metres	1	18.2%	1	1	1	1	1	0
10-12 metres	0	0.0%	0	0	0	0	0	0
12-15 metres	0	4.5%	0	0	0	0	0	0
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	9	100.0%	9	9	8	7	7	6
Boats w/o sails								
<3 metres	122	6.6%	127	132	163	201	231	264
3-5 metres	1,567	77.0%	1,623	1,680	2,042	2,488	2,842	3,225
5-8 metres	365	15.9%	377	388	463	556	629	708
8-10 metres	6	0.3%	6	6	8	10	11	13
10-12 metres	1	0.1%	1	1	1	2	2	3
12-15 metres	2	0.1%	2	2	2	3	3	3
15-25 metres	1	0.1%	1	1	1	2	2	2
>25 metres	0	0.0%	0	0	0	0	0	0
Total	2,064	100.0%	2,136	2,211	2,681	3,260	3,720	4,217
Total Boats								
<3 metres	124	6.6%	129	134	164	202	233	265
3-5 metres	1,568	76.7%	1,624	1,681	2,043	2,489	2,843	3,226
5-8 metres	370	16.1%	381	393	468	560	633	712
8-10 metres	7	0.4%	7	7	9	10	12	13
10-12 metres	1	0.1%	1	1	1	2	2	3
12-15 metres	2	0.1%	2	2	2	3	3	3
15-25 metres	1	0.1%	1	1	1	2	2	2
>25 metres	0	0.0%	0	0	0	0	0	0
Total	2,073	100.0%	2,145	2,220	2,689	3,268	3,727	4,224

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
SOUTH WEST QLD								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	1	100.0%	1	1	1	1	1	1
5-8 metres	0	0.0%	0	0	0	0	0	0
8-10 metres	0	0.0%	0	0	0	0	0	0
10-12 metres	0	0.0%	0	0	0	0	0	0
12-15 metres	0	0.0%	0	0	0	0	0	0
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	1	100.0%	1	1	1	1	1	1
Boats w/o sails								
<3 metres	23	10.8%	23	23	25	27	28	29
3-5 metres	176	75.0%	177	178	189	202	211	221
5-8 metres	37	13.4%	37	37	39	42	43	45
8-10 metres	1	0.3%	1	1	1	1	1	1
10-12 metres	1	0.3%	1	1	1	1	1	1
12-15 metres	1	0.1%	1	1	1	1	1	1
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	239	100.0%	240	242	257	274	286	298
Total Boats								
<3 metres	23	10.8%	23	23	25	27	28	29
3-5 metres	177	75.1%	178	179	190	203	212	222
5-8 metres	37	13.4%	37	37	39	42	43	45
8-10 metres	1	0.3%	1	1	1	1	1	1
10-12 metres	1	0.3%	1	1	1	1	1	1
12-15 metres	1	0.1%	1	1	1	1	1	1
15-25 metres	0	0.0%	0	0	0	0	0	0
>25 metres	0	0.0%	0	0	0	0	0	0
Total	240	100.0%	241	243	258	275	287	299
SEQ NORTH								
Sail Boat								
<3 metres	7	0.3%	7	7	8	9	9	9
3-5 metres	148	5.5%	149	151	163	173	181	186
5-8 metres	792	31.5%	801	809	880	936	979	1013
8-10 metres	526	20.3%	532	537	583	619	646	668
10-12 metres	610	23.6%	616	623	676	718	750	776
12-15 metres	431	15.6%	435	440	475	502	523	540
15-25 metres	76	3.0%	77	78	84	90	94	97
>25 metres	2	0.1%	2	2	2	3	3	3
Total	2,592	100.0%	2,619	2,647	2,872	3,049	3,185	3,293
Boats w/o sails								
<3 metres	2,991	5.6%	3,053	3,117	3,565	3,975	4,289	4,575
3-5 metres	42,902	71.4%	43,701	44,514	50,274	55,532	59,565	63,232
5-8 metres	12,543	19.5%	12,761	12,984	14,559	15,996	17,099	18,101
8-10 metres	843	1.4%	858	874	985	1,086	1,164	1,235
10-12 metres	638	1.1%	650	662	747	824	884	938
12-15 metres	483	0.8%	492	500	563	620	664	703
15-25 metres	204	0.3%	207	210	232	253	268	282
>25 metres	12	0.0%	12	12	14	16	17	18
Total	60,616	100.0%	61,734	62,873	70,940	78,302	83,950	89,084
Total Boats								
<3 metres	2,998	5.3%	3,060	3,124	3,573	3,984	4,298	4,584
3-5 metres	43,050	68.6%	43,850	44,665	50,438	55,705	59,746	63,418
5-8 metres	13,335	20.0%	13,562	13,793	15,439	16,932	18,078	19,114
8-10 metres	1,369	2.2%	1,390	1,411	1,568	1,705	1,811	1,903
10-12 metres	1,248	2.0%	1,266	1,285	1,423	1,542	1,634	1,714

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
12-15 metres	914	1.4%	927	940	1,038	1,122	1,187	1,243
15-25 metres	280	0.4%	284	288	317	342	362	379
>25 metres	14	0.0%	14	15	17	18	20	21
Total	63,208	100.0%	64,354	65,520	73,812	81,350	87,135	92,377
SEQ SOUTH								
Sail Boat								
<3 metres	10	0.7%	12	13	15	17	19	22
3-5 metres	122	6.8%	145	148	169	191	213	236
5-8 metres	502	33.1%	616	630	731	838	948	1060
8-10 metres	345	20.6%	416	425	487	554	622	692
10-12 metres	345	20.9%	417	426	490	557	626	698
12-15 metres	229	14.1%	277	284	326	372	418	466
15-25 metres	54	3.8%	67	69	80	92	105	118
>25 metres	0	0.0%	0	0	0	0	1	1
Total	1,607	100.0%	1,951	1,995	2,298	2,621	2,952	3,292
Boats w/o sails								
<3 metres	3,477	7.3%	3,975	4,110	5,020	6,046	7,064	8,157
3-5 metres	34,151	63.0%	38,431	39,590	47,396	56,206	64,949	74,335
5-8 metres	12,661	23.5%	14,255	14,686	17,593	20,873	24,129	27,624
8-10 metres	1,240	2.4%	1,402	1,446	1,742	2,075	2,407	2,762
10-12 metres	930	1.8%	1,051	1,084	1,304	1,553	1,800	2,065
12-15 metres	710	1.3%	801	825	990	1,177	1,362	1,561
15-25 metres	340	0.6%	379	389	460	539	618	703
>25 metres	33	0.1%	38	39	47	56	66	75
Total	53,542	100.0%	60,330	62,170	74,552	88,525	102,394	117,281
Total Boats								
<3 metres	3,487	7.1%	3,988	4,123	5,034	6,063	7,083	8,179
3-5 metres	34,273	61.4%	38,576	39,739	47,565	56,396	65,162	74,571
5-8 metres	13,163	23.8%	14,871	15,317	18,324	21,711	25,076	28,684
8-10 metres	1,585	2.9%	1,818	1,871	2,229	2,629	3,028	3,454
10-12 metres	1,275	2.4%	1,468	1,510	1,794	2,110	2,426	2,762
12-15 metres	939	1.7%	1,078	1,109	1,317	1,549	1,780	2,027
15-25 metres	394	0.7%	446	458	540	631	723	820
>25 metres	33	0.1%	38	39	47	57	66	76
Total	55,149	100.0%	62,281	64,165	76,849	91,146	105,345	120,573
INTERSTATE								
Sail Boat								
<3 metres	0	0.0%	0	0	0	0	0	0
3-5 metres	2	1.4%	2	2	3	3	4	5
5-8 metres	15	14.3%	16	17	23	30	37	45
8-10 metres	14	18.3%	15	16	24	33	42	53
10-12 metres	35	31.7%	37	39	52	68	84	103
12-15 metres	29	30.5%	31	33	45	61	76	94
15-25 metres	6	3.8%	6	6	8	10	12	14
>25 metres	0	0.0%	0	0	0	0	0	0
Total	101	100.0%	107	114	154	207	256	314
Boats w/o sails								
<3 metres	35	5.5%	37	38	49	61	73	86
3-5 metres	349	55.4%	366	384	486	614	730	863
5-8 metres	123	21.4%	130	136	176	225	270	321
8-10 metres	21	3.7%	22	23	30	39	47	56
10-12 metres	24	4.3%	25	27	35	45	54	64
12-15 metres	29	5.1%	31	32	42	53	64	76
15-25 metres	31	4.3%	32	34	42	52	61	71
>25 metres	1	0.4%	1	1	2	3	3	4
Total	613	100.0%	644	676	861	1,092	1,300	1,540
Total Boats								

	2009 Regos	Proportion	2010	2011	2016	2021	2026	2031
<3 metres	35	4.7%	37	38	49	61	73	86
3-5 metres	351	48.0%	368	386	489	618	734	868
5-8 metres	138	20.4%	145	153	199	255	307	366
8-10 metres	35	5.7%	37	40	54	72	89	109
10-12 metres	59	8.1%	62	66	86	113	138	167
12-15 metres	58	8.6%	61	65	87	114	140	170
15-25 metres	37	4.2%	39	40	50	62	73	85
>25 metres	1	0.3%	1	1	2	3	3	4
Total	714	100.0%	751	790	1,015	1,298	1,556	1,854
QUEENSLAND								
Sail Boat								
<3 metres	26	0.4%	29	29	33	36	40	43
3-5 metres	445	6.2%	475	485	552	623	692	769
5-8 metres	2,076	28.7%	2,223	2,271	2,590	2,923	3,237	3,576
8-10 metres	1,538	21.3%	1,633	1,666	1,886	2,113	2,327	2,555
10-12 metres	1,740	24.1%	1,840	1,877	2,126	2,385	2,628	2,892
12-15 metres	1,177	16.3%	1,243	1,267	1,428	1,596	1,754	1,925
15-25 metres	220	3.0%	236	241	275	311	345	381
>25 metres	4	0.1%	4	4	5	7	8	9
Total	7,226	100.0%	7,682	7,841	8,896	9,995	11,030	12,150
Boats w/o sails								
<3 metres	9,708	4.4%	10,395	10,724	12,787	14,987	16,989	19,095
3-5 metres	158,738	71.6%	166,646	171,563	201,180	232,345	260,012	289,121
5-8 metres	45,428	20.5%	47,874	49,188	57,263	65,809	73,500	81,586
8-10 metres	3,072	1.4%	3,283	3,377	3,975	4,613	5,199	5,816
10-12 metres	2,155	1.0%	2,308	2,374	2,797	3,248	3,663	4,098
12-15 metres	1,712	0.8%	1,828	1,878	2,202	2,549	2,868	3,203
15-25 metres	771	0.3%	819	839	971	1,113	1,244	1,382
>25 metres	54	0.0%	59	61	73	87	100	113
Total	221,638	100.0%	233,212	240,005	281,249	324,751	363,574	404,413
Total Boats								
<3 metres	9,734	4.3%	10,423	10,753	12,821	15,026	17,032	19,142
3-5 metres	159,183	69.6%	167,125	172,055	201,762	233,026	260,785	289,998
5-8 metres	47,504	20.8%	50,096	51,458	59,850	68,726	76,729	85,151
8-10 metres	4,610	2.0%	4,914	5,041	5,851	6,708	7,500	8,336
10-12 metres	3,895	1.7%	4,146	4,249	4,913	5,614	6,263	6,952
12-15 metres	2,889	1.3%	3,070	3,144	3,624	4,133	4,604	5,105
15-25 metres	991	0.4%	1,055	1,080	1,245	1,420	1,583	1,756
>25 metres	58	0.0%	63	65	79	94	108	122
Total	228,864	100.0%	240,894	247,846	290,144	334,746	374,604	416,563

Source: Economic Associates estimates

Table B.3: Projected Size of Trailerable Boat Fleet, Base Case Scenario, 2010-2031

	Proportion	2010	2011	2016	2021	2026	2031
CAPE YORK							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	2	2	2	2	2	2
5-8 metres	50.0%	7	7	7	7	7	8
8-10 metres	25.0%	3	3	3	3	4	4
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	23.6%	12	12	12	12	13	13
Boats w/o sails							
<3 metres	100.0%	18	18	19	20	21	22
3-5 metres	100.0%	1,229	1,229	1,271	1,322	1,380	1,437
5-8 metres	85.0%	391	391	404	419	437	454
8-10 metres	50.0%	11	11	11	12	12	13
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.3%	1,649	1,650	1,705	1,773	1,850	1,926
Total Boats							
<3 metres	100.0%	18	18	19	20	21	22
3-5 metres	100.0%	1,230	1,231	1,273	1,324	1,382	1,439
5-8 metres	84.0%	398	398	411	426	444	462
8-10 metres	40.7%	14	14	15	15	16	17
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	92.4%	1,660	1,661	1,717	1,785	1,863	1,939
NORTH WEST QLD							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	0	0	0	0	0	0
5-8 metres	50.0%	3	3	3	3	3	3
8-10 metres	25.0%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	27.5%	3	3	3	3	3	3
Boats w/o sails							
<3 metres	100.0%	52	54	52	52	53	56
3-5 metres	100.0%	1,430	1,495	1,441	1,441	1,471	1,519
5-8 metres	85.0%	290	303	292	292	298	307
8-10 metres	50.0%	2	2	2	2	2	2
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	97.0%	1,774	1,854	1,787	1,787	1,824	1,884
Total Boats							
<3 metres	100.0%	52	54	52	52	53	56

	Proportion	2010	2011	2016	2021	2026	2031
3-5 metres	100.0%	1,430	1,495	1,441	1,441	1,471	1,519
5-8 metres	84.5%	293	305	295	295	301	310
8-10 metres	45.1%	2	2	2	2	2	3
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	96.6%	1,777	1,857	1,790	1,790	1,827	1,887
CAIRNS							
Sail Boat							
<3 metres	100.0%	2	2	2	2	2	3
3-5 metres	90.0%	33	34	36	37	39	41
5-8 metres	50.0%	69	70	75	81	86	91
8-10 metres	25.0%	32	32	34	36	38	41
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	23.6%	137	137	147	157	166	176
Boats w/o sails							
<3 metres	100.0%	466	469	506	540	575	613
3-5 metres	100.0%	12,504	12,577	13,467	14,292	15,136	16,042
5-8 metres	85.0%	3,447	3,465	3,687	3,892	4,102	4,328
8-10 metres	50.0%	86	86	92	98	104	110
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.8%	16,503	16,598	17,752	18,822	19,918	21,092
Total Boats							
<3 metres	100.0%	468	471	508	543	578	615
3-5 metres	100.0%	12,538	12,611	13,502	14,329	15,176	16,083
5-8 metres	83.8%	3,516	3,535	3,762	3,973	4,188	4,419
8-10 metres	39.4%	118	118	127	134	142	151
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	92.5%	16,640	16,735	17,899	18,979	20,084	21,268
TOWNSVILLE							
Sail Boat							
<3 metres	100.0%	3	3	3	4	4	4
3-5 metres	90.0%	25	25	28	31	33	34
5-8 metres	50.0%	54	55	62	67	72	76
8-10 metres	25.0%	21	22	24	27	28	30
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.1%	103	105	118	129	137	144
Boats w/o sails							
<3 metres	100.0%	368	376	424	462	491	518
3-5 metres	100.0%	13,870	14,131	15,779	17,060	18,072	18,977
5-8 metres	85.0%	2,705	2,751	3,039	3,263	3,441	3,599
8-10 metres	50.0%	51	52	58	63	66	69
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0

	Proportion	2010	2011	2016	2021	2026	2031
>25 metres	0.0%	0	0	0	0	0	0
Total	96.1%	16,995	17,310	19,301	20,847	22,070	23,163
Total Boats							
<3 metres	100.0%	372	379	428	465	495	522
3-5 metres	100.0%	13,895	14,156	15,807	17,091	18,105	19,012
5-8 metres	83.9%	2,759	2,805	3,101	3,331	3,512	3,675
8-10 metres	38.7%	73	74	83	89	94	99
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.5%	17,098	17,415	19,419	20,976	22,207	23,308
CENTRAL WEST							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	2	2	2	2	2	2
5-8 metres	50.0%	0	0	0	0	0	0
8-10 metres	25.0%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	45.0%	2	2	2	2	2	2
Boats w/o sails							
<3 metres	100.0%	32	32	33	33	34	36
3-5 metres	100.0%	330	329	337	344	353	366
5-8 metres	85.0%	57	57	58	59	60	62
8-10 metres	50.0%	0	0	1	1	1	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	97.3%	419	419	428	437	448	464
Total Boats							
<3 metres	100.0%	32	32	33	33	34	36
3-5 metres	99.9%	331	331	339	346	355	367
5-8 metres	85.0%	57	57	58	59	60	62
8-10 metres	50.0%	0	0	1	1	1	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres		0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	96.8%	421	420	430	439	450	466
EMERALD							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	2	2	2	3	3	3
5-8 metres	50.0%	3	3	4	4	4	5
8-10 metres	25.0%	1	1	1	1	1	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	29.5%	6	6	7	7	8	9
Boats w/o sails							
<3 metres	100.0%	92	96	107	119	129	140
3-5 metres	100.0%	1,841	1,900	2,108	2,307	2,496	2,686

	Proportion	2010	2011	2016	2021	2026	2031
5-8 metres	85.0%	546	562	616	668	718	768
8-10 metres	50.0%	5	5	6	6	7	7
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.8%	2,484	2,562	2,837	3,100	3,349	3,600
Total Boats							
<3 metres	100.0%	92	96	107	119	129	140
3-5 metres	100.0%	1,843	1,902	2,110	2,309	2,498	2,689
5-8 metres	84.7%	549	565	620	672	722	772
8-10 metres	45.4%	5	5	6	7	8	8
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	95.3%	2,490	2,568	2,844	3,107	3,357	3,609
MACKAY							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	14	15	17	18	19	20
5-8 metres	50.0%	44	46	54	59	63	65
8-10 metres	25.0%	13	14	16	18	19	20
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	24.8%	72	75	87	96	102	106
Boats w/o sails							
<3 metres	100.0%	395	412	479	530	561	584
3-5 metres	100.0%	10,126	10,528	12,079	13,253	13,973	14,510
5-8 metres	85.0%	2,114	2,189	2,477	2,696	2,829	2,929
8-10 metres	50.0%	70	72	82	89	93	97
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.4%	12,705	13,202	15,117	16,568	17,456	18,120
Total Boats							
<3 metres	100.0%	395	412	479	530	561	584
3-5 metres	100.0%	10,140	10,543	12,096	13,272	13,992	14,530
5-8 metres	83.8%	2,159	2,235	2,531	2,755	2,892	2,995
8-10 metres	43.1%	83	86	98	107	113	117
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	93.9%	12,777	13,276	15,204	16,664	17,558	18,225
WHITSUNDAY							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	4	4	4	5	5	6
5-8 metres	50.0%	40	41	46	50	53	56
8-10 metres	25.0%	23	23	26	29	31	32
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0

	Proportion	2010	2011	2016	2021	2026	2031
Total	16.4%	66	68	76	83	89	94
Boats w/o sails							
<3 metres	100.0%	110	112	126	137	146	155
3-5 metres	100.0%	3,374	3,428	3,817	4,146	4,405	4,642
5-8 metres	85.0%	924	937	1,035	1,118	1,183	1,242
8-10 metres	50.0%	51	51	57	62	65	69
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	92.1%	4,459	4,528	5,035	5,463	5,799	6,108
Total Boats							
<3 metres	100.0%	110	112	126	137	146	155
3-5 metres	100.0%	3,378	3,431	3,822	4,151	4,410	4,648
5-8 metres	82.6%	964	978	1,080	1,167	1,235	1,298
8-10 metres	38.2%	73	75	83	90	96	101
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	86.3%	4,525	4,595	5,111	5,546	5,888	6,202
GLADSTONE							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	1
3-5 metres	90.0%	12	12	13	14	15	17
5-8 metres	50.0%	23	23	26	29	32	35
8-10 metres	25.0%	11	12	13	14	15	17
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	22.9%	46	47	52	57	63	69
Boats w/o sails							
<3 metres	100.0%	295	302	333	365	401	440
3-5 metres	100.0%	5,992	6,136	6,749	7,393	8,121	8,901
5-8 metres	85.0%	1,313	1,342	1,465	1,595	1,742	1,899
8-10 metres	50.0%	39	40	44	47	52	57
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.6%	7,639	7,820	8,590	9,400	10,316	11,297
Total Boats							
<3 metres	100.0%	295	302	333	365	402	441
3-5 metres	100.0%	6,004	6,148	6,762	7,407	8,136	8,918
5-8 metres	84.0%	1,335	1,365	1,491	1,624	1,774	1,934
8-10 metres	40.8%	50	51	56	61	67	74
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	93.9%	7,685	7,867	8,642	9,457	10,379	11,367
ROCKHAMPTON							
Sail Boat							
<3 metres	100.0%	1	1	1	1	1	1
3-5 metres	90.0%	10	10	11	12	13	14
5-8 metres	50.0%	30	30	33	35	38	40

	Proportion	2010	2011	2016	2021	2026	2031
8-10 metres	25.0%	17	18	19	20	21	23
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.9%	58	59	64	68	73	78
Boats w/o sails							
<3 metres	100.0%	252	259	280	301	322	344
3-5 metres	100.0%	6,281	6,425	6,879	7,331	7,804	8,274
5-8 metres	85.0%	1,479	1,509	1,607	1,703	1,805	1,905
8-10 metres	50.0%	61	62	66	70	75	79
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	96.6%	8,073	8,256	8,831	9,406	10,005	10,603
Total Boats							
<3 metres	100.0%	253	260	281	302	323	345
3-5 metres	100.0%	6,291	6,436	6,890	7,343	7,816	8,288
5-8 metres	83.8%	1,508	1,540	1,639	1,739	1,842	1,946
8-10 metres	40.9%	78	80	85	90	96	102
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	92.8%	8,131	8,315	8,895	9,474	10,078	10,680
NORTH WIDE BAY							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	16	16	17	19	20	21
5-8 metres	50.0%	25	25	27	29	31	34
8-10 metres	25.0%	12	12	13	13	14	15
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	23.2%	53	54	57	61	65	70
Boats w/o sails							
<3 metres	100.0%	283	284	306	328	354	382
3-5 metres	100.0%	7,587	7,629	8,158	8,696	9,321	10,023
5-8 metres	85.0%	830	835	888	942	1,005	1,076
8-10 metres	50.0%	19	19	20	21	23	25
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	97.4%	8,719	8,767	9,372	9,988	10,703	11,507
Total Boats							
<3 metres	100.0%	283	284	306	328	354	382
3-5 metres	100.0%	7,603	7,646	8,175	8,715	9,341	10,045
5-8 metres	83.3%	856	860	915	972	1,037	1,110
8-10 metres	36.0%	30	31	33	35	37	40
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.6%	8,772	8,821	9,429	10,049	10,769	11,577

	Proportion	2010	2011	2016	2021	2026	2031
SOUTH WIDE BAY							
Sail Boat							
<3 metres	100.0%	1	1	1	1	1	2
3-5 metres	90.0%	31	32	35	38	41	43
5-8 metres	50.0%	77	78	86	93	99	106
8-10 metres	25.0%	30	31	33	36	39	41
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.9%	135	137	137	162	162	184
Boats w/o sails							
<3 metres	100.0%	419	427	470	508	545	582
3-5 metres	100.0%	11,029	11,216	12,286	13,227	14,157	15,076
5-8 metres	85.0%	2,017	2,050	2,236	2,400	2,563	2,723
8-10 metres	50.0%	84	85	93	100	107	114
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.6%	13,549	13,778	15,086	16,235	17,372	18,495
Total Boats							
<3 metres	100.0%	420	428	471	509	547	584
3-5 metres	100.0%	11,060	11,248	12,321	13,265	14,198	15,119
5-8 metres	82.9%	2,094	2,128	2,322	2,493	2,662	2,829
8-10 metres	39.6%	114	116	127	136	146	155
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	93.2%	13,684	13,916	15,223	16,397	17,534	18,679
DARLING DOWNS							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	6	6	6	7	7	8
5-8 metres	50.0%	14	14	15	16	17	18
8-10 metres	25.0%	3	3	3	3	3	4
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.9%	18	18	18	21	21	23
Boats w/o sails							
<3 metres	100.0%	341	348	378	411	442	473
3-5 metres	100.0%	5,484	5,575	6,001	6,460	6,898	7,340
5-8 metres	85.0%	914	928	994	1,064	1,131	1,199
8-10 metres	50.0%	11	11	12	12	13	14
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	96.8%	6,750	6,861	7,385	7,947	8,484	9,026
Total Boats							
<3 metres	100.0%	341	348	378	411	442	473
3-5 metres	100.0%	5,489	5,580	6,008	6,467	6,905	7,348
5-8 metres	84.1%	928	942	1,009	1,081	1,149	1,218
8-10 metres	41.4%	13	14	15	16	17	18
10-12 metres	0.0%	0	0	0	0	0	0

	Proportion	2010	2011	2016	2021	2026	2031
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	96.2%	6,767	6,879	7,403	7,968	8,505	9,049
SOUTH CENTRAL							
Sail Boat							
<3 metres	100.0%	2	2	2	2	2	2
3-5 metres	90.0%	1	1	1	1	1	1
5-8 metres	50.0%	3	3	3	3	3	3
8-10 metres	25.0%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.9%	2	2	2	3	3	3
Boats w/o sails							
<3 metres	100.0%	122	123	127	131	135	138
3-5 metres	100.0%	1,570	1,574	1,622	1,677	1,718	1,749
5-8 metres	85.0%	311	311	320	330	337	342
8-10 metres	50.0%	3	3	3	3	3	3
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	97.0%	2,007	2,011	2,072	2,141	2,193	2,232
Total Boats							
<3 metres	100.0%	124	125	129	134	137	140
3-5 metres	100.0%	1,571	1,575	1,623	1,678	1,719	1,750
5-8 metres	84.5%	313	314	323	332	340	345
8-10 metres	46.4%	3	3	3	4	4	4
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	96.7%	2,009	2,013	2,075	2,144	2,196	2,235
SOUTH WEST QLD							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	1	1	1	1	1	1
5-8 metres	50.0%	0	0	0	0	0	0
8-10 metres	25.0%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.9%	0	0	0	0	0	0
Boats w/o sails							
<3 metres	100.0%	23	23	23	23	23	23
3-5 metres	100.0%	175	174	174	175	175	176
5-8 metres	85.0%	31	31	31	31	31	31
8-10 metres	50.0%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	96.6%	230	229	229	229	230	230
Total Boats							

	Proportion	2010	2011	2016	2021	2026	2031
<3 metres	99.5%	23	23	23	23	23	23
3-5 metres	99.4%	176	175	175	176	176	176
5-8 metres	84.6%	31	31	31	31	31	31
8-10 metres	49.8%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres		0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	96.3%	230	229	229	230	230	231
SEQ NORTH							
Sail Boat							
<3 metres	100.0%	7	7	8	9	9	10
3-5 metres	90.0%	135	136	148	158	165	171
5-8 metres	50.0%	401	405	443	474	497	516
8-10 metres	25.0%	133	135	147	156	164	170
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.9%	704	712	712	829	829	900
Boats w/o sails							
<3 metres	100.0%	3,029	3,066	3,370	3,612	3,799	3,949
3-5 metres	100.0%	43,383	43,870	47,764	50,877	53,269	55,204
5-8 metres	85.0%	10,773	10,887	11,791	12,515	13,071	13,520
8-10 metres	50.0%	426	431	468	498	521	540
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.0%	57,612	58,254	63,393	67,502	70,660	73,214
Total Boats							
<3 metres	100.0%	3,036	3,074	3,378	3,621	3,808	3,959
3-5 metres	100.0%	43,518	44,007	47,912	51,034	53,434	55,375
5-8 metres	82.9%	11,174	11,292	12,235	12,988	13,568	14,036
8-10 metres	40.4%	559	565	615	655	685	710
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	91.2%	58,316	58,967	64,105	68,331	71,488	74,114
SEQ SOUTH							
Sail Boat							
<3 metres	100.0%	10	10	12	14	16	18
3-5 metres	90.0%	112	114	129	145	161	178
5-8 metres	50.0%	257	262	303	346	390	435
8-10 metres	25.0%	88	90	102	116	129	143
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	28.4%	467	477	546	620	696	774
Boats w/o sails							
<3 metres	100.0%	3,558	3,640	4,221	4,834	5,467	6,112
3-5 metres	100.0%	34,844	35,551	40,539	45,804	51,235	56,775
5-8 metres	85.0%	10,981	11,205	12,784	14,450	16,169	17,922
8-10 metres	50.0%	633	647	741	841	944	1,048
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0

	Proportion	2010	2011	2016	2021	2026	2031
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	91.5%	50,016	51,043	58,285	65,929	73,814	81,857
Total Boats							
<3 metres	100.0%	3,568	3,651	4,233	4,848	5,483	6,130
3-5 metres	100.0%	34,956	35,665	40,668	45,949	51,396	56,952
5-8 metres	83.7%	11,238	11,467	13,087	14,796	16,559	18,357
8-10 metres	44.6%	721	736	843	956	1,073	1,192
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	89.7%	50,482	51,519	58,831	66,549	74,510	82,631
INTERSTATE							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	2	2	2	2	2	2
5-8 metres	50.0%	8	8	8	9	9	10
8-10 metres	25.0%	4	4	4	4	5	5
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	12.7%	13	13	14	15	16	17
Boats w/o sails							
<3 metres	100.0%	35	36	38	41	43	46
3-5 metres	100.0%	354	359	383	408	433	456
5-8 metres	85.0%	106	108	116	124	132	140
8-10 metres	50.0%	11	11	12	12	13	14
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	81.4%	506	513	549	585	621	655
Total Boats							
<3 metres	100.0%	35	36	38	41	43	46
3-5 metres	99.9%	356	361	385	410	435	458
5-8 metres	81.2%	114	115	124	133	141	149
8-10 metres	40.0%	14	14	16	17	18	19
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	71.7%	519	526	563	600	637	672
QUEENSLAND							
Sail Boat							
<3 metres	100.0%	26	27	30	33	37	39
3-5 metres	90.0%	407	413	455	493	529	564
5-8 metres	50.0%	1,056	1,074	1,194	1,303	1,404	1,500
8-10 metres	25.0%	391	397	439	477	512	546
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	25.8%	1,896	1,927	2,055	2,324	2,445	2,665
Boats w/o sails							
<3 metres	100.0%	9,891	10,077	11,291	12,446	13,542	14,611

	Proportion	2010	2011	2016	2021	2026	2031
3-5 metres	100.0%	161,404	164,127	180,854	196,212	210,416	224,153
5-8 metres	85.0%	39,230	39,860	43,840	47,562	51,053	54,448
8-10 metres	50.0%	1,563	1,590	1,768	1,939	2,102	2,262
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.1%	212,087	215,654	237,754	258,160	277,114	295,474
Total Boats							
<3 metres	100.0%	9,917	10,104	11,321	12,480	13,578	14,651
3-5 metres	100.0%	161,810	164,540	181,309	196,705	210,945	224,716
5-8 metres	83.5%	40,286	40,933	45,034	48,866	52,457	55,948
8-10 metres	41.7%	1,953	1,987	2,207	2,416	2,615	2,808
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	92.0%	213,983	217,581	239,809	260,483	279,559	298,139

Source: Economic Associates estimates

Table B.4: Projected Size of Trailerable Boat Fleet, Increasing Incidence of Boat Ownership Scenario, 2010-2031

	Proportion	2010	2011	2016	2021	2026	2031
CAPE YORK							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	2	2	2	2	2	3
5-8 metres	50.0%	7	7	9	11	13	15
8-10 metres	25.0%	3	3	4	5	6	7
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	23.5%	12	12	15	19	22	26
Boats w/o sails							
<3 metres	100.0%	18	19	22	25	28	31
3-5 metres	100.0%	1,250	1,273	1,439	1,637	1,817	2,010
5-8 metres	85.0%	398	405	455	515	569	627
8-10 metres	50.0%	11	11	13	15	16	18
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.3%	1,677	1,707	1,928	2,192	2,430	2,687
Total Boats							
<3 metres	102.1%	18	19	22	25	28	31
3-5 metres	101.8%	1,252	1,275	1,441	1,640	1,820	2,013
5-8 metres	85.5%	404	412	463	526	582	642
8-10 metres	41.6%	15	15	17	20	23	25
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	92.3%	1,689	1,720	1,943	2,210	2,452	2,712
NORTH WEST QLD							

	Proportion	2010	2011	2016	2021	2026	2031
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	0	0	0	0	0	0
5-8 metres	50.0%	3	3	3	4	4	5
8-10 metres	25.0%	0	0	0	0	0	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	27.5%	3	3	4	5	5	6
Boats w/o sails							
<3 metres	100.0%	53	56	58	62	67	73
3-5 metres	100.0%	1,450	1,538	1,577	1,681	1,791	1,931
5-8 metres	85.0%	294	310	318	337	358	384
8-10 metres	50.0%	2	2	2	3	3	3
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	97.0%	1,799	1,907	1,955	2,083	2,219	2,392
Total Boats							
<3 metres	100.0%	53	56	58	62	67	73
3-5 metres	100.0%	1,450	1,538	1,577	1,681	1,792	1,932
5-8 metres	84.5%	297	313	321	341	362	389
8-10 metres	45.0%	2	3	3	3	3	3
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	96.6%	1,802	1,910	1,959	2,088	2,224	2,398
CAIRNS							
Sail Boat							
<3 metres	100.0%	2	2	2	3	3	3
3-5 metres	90.0%	34	35	40	45	50	55
5-8 metres	50.0%	71	73	86	101	115	130
8-10 metres	25.0%	32	33	39	45	50	56
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	23.6%	139	142	167	194	218	245
Boats w/o sails							
<3 metres	100.0%	470	477	536	597	653	714
3-5 metres	100.0%	12,599	12,767	14,200	15,649	16,997	18,472
5-8 metres	85.0%	3,470	3,512	3,869	4,230	4,566	4,933
8-10 metres	50.0%	87	88	97	107	116	126
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.8%	16,626	16,845	18,703	20,583	22,332	24,246
Total Boats							
<3 metres	100.0%	472	479	539	599	656	717
3-5 metres	99.9%	12,633	12,802	14,239	15,694	17,047	18,528
5-8 metres	83.8%	3,541	3,585	3,956	4,331	4,681	5,063
8-10 metres	39.5%	119	121	136	152	167	183
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0

	Proportion	2010	2011	2016	2021	2026	2031
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	92.5%	16,765	16,987	18,870	20,777	22,550	24,491
TOWNSVILLE							
Sail Boat							
<3 metres	100.0%	3	3	3	3	3	4
3-5 metres	90.0%	25	25	26	27	28	29
5-8 metres	50.0%	53	54	57	59	61	62
8-10 metres	25.0%	21	21	23	23	24	25
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.1%	102	103	110	114	117	119
Boats w/o sails							
<3 metres	100.0%	374	387	469	546	608	669
3-5 metres	100.0%	14,054	14,507	17,298	19,948	22,057	24,169
5-8 metres	85.0%	2,737	2,817	3,305	3,769	4,138	4,508
8-10 metres	50.0%	52	54	63	73	80	88
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	96.1%	17,217	17,764	21,136	24,336	26,883	29,434
Total Boats							
<3 metres	100.0%	377	390	472	549	611	673
3-5 metres	100.0%	14,078	14,531	17,325	19,976	22,085	24,198
5-8 metres	83.9%	2,790	2,870	3,363	3,828	4,199	4,570
8-10 metres	38.8%	73	75	86	96	104	112
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.6%	17,319	17,866	21,245	24,450	27,000	29,553
CENTRAL WEST							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	2	2	2	2	2	2
5-8 metres	50.0%	0	0	0	0	0	0
8-10 metres	25.0%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	45.0%	2	2	2	2	2	2
Boats w/o sails							
<3 metres	100.0%	32	33	36	39	42	46
3-5 metres	100.0%	334	337	368	400	428	463
5-8 metres	85.0%	58	58	63	67	72	77
8-10 metres	50.0%	1	1	1	1	1	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	97.3%	424	429	467	507	543	586
Total Boats							
<3 metres	100.0%	32	33	36	39	42	46

	Proportion	2010	2011	2016	2021	2026	2031
3-5 metres	99.9%	335	339	370	402	430	465
5-8 metres	85.0%	58	58	63	67	72	77
8-10 metres	50.0%	1	1	1	1	1	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres		0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	96.8%	426	431	469	509	545	589
EMERALD							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	2	2	2	2	2	2
5-8 metres	50.0%	3	3	3	3	3	3
8-10 metres	25.0%	1	1	1	1	1	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	29.5%	5	5	6	6	6	6
Boats w/o sails							
<3 metres	100.0%	95	101	127	158	186	217
3-5 metres	100.0%	1,884	1,989	2,464	3,007	3,498	4,045
5-8 metres	85.0%	557	585	710	852	980	1,124
8-10 metres	50.0%	5	5	7	8	10	12
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.8%	2,540	2,679	3,308	4,025	4,674	5,398
Total Boats							
<3 metres	100.0%	95	101	127	158	186	217
3-5 metres	100.0%	1,885	1,991	2,466	3,009	3,500	4,047
5-8 metres	84.7%	560	588	713	855	984	1,127
8-10 metres	45.6%	5	6	7	9	11	12
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	95.3%	2,546	2,685	3,314	4,031	4,680	5,403
MACKAY							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	14	14	16	17	17	17
5-8 metres	50.0%	44	45	50	53	55	56
8-10 metres	25.0%	13	14	15	16	17	17
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	24.8%	71	73	81	86	89	90
Boats w/o sails							
<3 metres	100.0%	402	428	542	652	730	802
3-5 metres	100.0%	10,297	10,886	13,546	16,093	17,880	19,560
5-8 metres	85.0%	2,146	2,256	2,750	3,223	3,556	3,868
8-10 metres	50.0%	71	75	91	106	117	128
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0

	Proportion	2010	2011	2016	2021	2026	2031
>25 metres	0.0%	0	0	0	0	0	0
Total	95.4%	12,916	13,644	16,929	20,075	22,282	24,357
Total Boats							
<3 metres	100.0%	402	428	542	652	730	802
3-5 metres	100.0%	10,311	10,900	13,562	16,109	17,897	19,577
5-8 metres	83.8%	2,190	2,301	2,800	3,277	3,611	3,924
8-10 metres	43.2%	84	88	106	123	134	145
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.0%	12,987	13,717	17,010	20,161	22,371	24,448
WHITSUNDAY							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	4	4	4	4	5	5
5-8 metres	50.0%	40	40	43	45	47	49
8-10 metres	25.0%	22	23	25	26	27	28
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	16.4%	66	67	72	76	79	81
Boats w/o sails							
<3 metres	100.0%	112	116	145	175	199	224
3-5 metres	100.0%	3,439	3,560	4,362	5,205	5,885	6,599
5-8 metres	85.0%	940	970	1,172	1,384	1,555	1,734
8-10 metres	50.0%	52	53	65	76	86	96
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	92.1%	4,543	4,700	5,744	6,840	7,725	8,654
Total Boats							
<3 metres	100.0%	112	116	145	175	199	224
3-5 metres	100.0%	3,443	3,564	4,366	5,210	5,890	6,604
5-8 metres	82.6%	980	1,010	1,215	1,429	1,602	1,783
8-10 metres	38.4%	74	76	89	102	113	124
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	86.4%	4,609	4,767	5,816	6,916	7,804	8,735
GLADSTONE							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	1
3-5 metres	90.0%	12	12	13	14	16	17
5-8 metres	50.0%	23	23	26	30	33	37
8-10 metres	25.0%	11	12	13	14	16	18
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	22.9%	46	47	53	59	65	72
Boats w/o sails							
<3 metres	100.0%	303	318	399	497	595	711
3-5 metres	100.0%	6,150	6,463	8,077	10,044	12,010	14,323

	Proportion	2010	2011	2016	2021	2026	2031
5-8 metres	85.0%	1,344	1,407	1,733	2,129	2,526	2,992
8-10 metres	50.0%	40	42	52	64	76	90
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.6%	7,837	8,230	10,261	12,734	15,207	18,116
Total Boats							
<3 metres	100.0%	303	319	399	497	596	711
3-5 metres	100.0%	6,162	6,475	8,090	10,058	12,026	14,340
5-8 metres	84.0%	1,367	1,431	1,759	2,159	2,559	3,029
8-10 metres	41.0%	51	53	65	78	92	108
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	93.9%	7,883	8,278	10,314	12,793	15,272	18,188
ROCKHAMPTON							
Sail Boat							
<3 metres	100.0%	1	1	1	1	1	1
3-5 metres	90.0%	10	10	11	12	12	13
5-8 metres	50.0%	30	30	32	35	37	39
8-10 metres	25.0%	17	17	19	20	21	22
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.2%	58	59	63	67	71	75
Boats w/o sails							
<3 metres	100.0%	260	274	337	411	479	554
3-5 metres	100.0%	6,435	6,744	8,127	9,741	11,216	12,858
5-8 metres	85.0%	1,512	1,578	1,874	2,220	2,535	2,887
8-10 metres	50.0%	62	65	78	92	106	121
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.5%	8,269	8,661	10,416	12,465	14,336	16,420
Total Boats							
<3 metres	100.0%	261	275	338	412	480	555
3-5 metres	100.0%	6,445	6,755	8,138	9,753	11,228	12,872
5-8 metres	83.9%	1,541	1,608	1,906	2,254	2,572	2,926
8-10 metres	41.1%	79	83	96	112	127	143
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	92.8%	8,327	8,720	10,479	12,532	14,407	16,496
NORTH WIDE BAY							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	17	19	27	39	52	68
5-8 metres	50.0%	27	29	45	67	89	119
8-10 metres	25.0%	12	13	19	26	34	45
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0

	Proportion	2010	2011	2016	2021	2026	2031
Total	24.9%	57	61	90	133	175	233
Boats w/o sails							
<3 metres	100.0%	289	296	353	419	483	557
3-5 metres	100.0%	7,731	7,921	9,318	10,923	12,482	14,306
5-8 metres	85.0%	845	864	1,005	1,167	1,324	1,508
8-10 metres	50.0%	19	19	23	27	31	35
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	99.8%	8,883	9,101	10,699	12,536	14,319	16,407
Total Boats							
<3 metres	100.0%	289	296	353	419	483	557
3-5 metres	100.0%	7,748	7,940	9,345	10,963	12,533	14,375
5-8 metres	83.2%	872	893	1,050	1,234	1,414	1,628
8-10 metres	35.8%	31	33	42	53	65	80
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.5%	8,940	9,162	10,790	12,669	14,495	16,639
SOUTH WIDE BAY							
Sail Boat							
<3 metres	100.0%	1	1	1	2	2	2
3-5 metres	90.0%	32	32	38	43	48	53
5-8 metres	50.0%	78	80	93	106	117	130
8-10 metres	25.0%	30	31	36	41	46	50
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.2%	133	137	137	180	180	220
Boats w/o sails							
<3 metres	100.0%	424	437	509	581	647	716
3-5 metres	100.0%	11,148	11,460	13,246	15,039	16,680	18,402
5-8 metres	85.0%	2,038	2,092	2,404	2,716	3,002	3,303
8-10 metres	50.0%	85	87	100	114	126	138
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	95.6%	13,695	14,076	16,259	18,450	20,455	22,560
Total Boats							
<3 metres	100.0%	425	438	510	582	649	718
3-5 metres	100.0%	11,179	11,493	13,284	15,082	16,728	18,456
5-8 metres	82.9%	2,115	2,172	2,496	2,822	3,120	3,433
8-10 metres	39.6%	115	118	136	155	171	189
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	93.2%	13,828	14,213	16,396	18,629	20,635	22,780
DARLING DOWNS							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	6	7	12	20	29	40
5-8 metres	50.0%	15	17	27	43	59	81

	Proportion	2010	2011	2016	2021	2026	2031
8-10 metres	25.0%	3	3	5	9	12	16
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.2%	19	21	21	52	52	98
Boats w/o sails							
<3 metres	100.0%	348	362	432	515	588	669
3-5 metres	100.0%	5,579	5,771	6,769	7,935	8,972	10,106
5-8 metres	85.0%	929	958	1,112	1,291	1,450	1,625
8-10 metres	50.0%	11	11	13	15	17	19
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	96.8%	6,867	7,102	8,326	9,756	11,028	12,418
Total Boats							
<3 metres	100.0%	348	362	432	515	588	669
3-5 metres	100.0%	5,585	5,778	6,781	7,956	9,001	10,146
5-8 metres	84.0%	944	975	1,139	1,334	1,510	1,706
8-10 metres	41.0%	14	15	18	24	29	36
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	96.1%	6,886	7,122	8,346	9,808	11,080	12,517
SOUTH CENTRAL							
Sail Boat							
<3 metres	100.0%	2	2	2	2	2	2
3-5 metres	90.0%	1	1	1	1	1	1
5-8 metres	50.0%	2	2	2	2	2	2
8-10 metres	25.0%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.2%	2	2	2	2	2	2
Boats w/o sails							
<3 metres	100.0%	127	132	163	201	231	264
3-5 metres	100.0%	1,623	1,680	2,042	2,488	2,842	3,225
5-8 metres	85.0%	320	330	394	472	534	602
8-10 metres	50.0%	3	3	4	5	6	6
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	97.0%	2,073	2,145	2,602	3,166	3,613	4,097
Total Boats							
<3 metres	100.0%	129	134	164	202	233	265
3-5 metres	100.0%	1,624	1,681	2,043	2,489	2,843	3,226
5-8 metres	84.5%	322	333	396	474	536	604
8-10 metres	46.7%	3	3	4	5	6	6
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	96.7%	2,075	2,148	2,605	3,168	3,615	4,098

	Proportion	2010	2011	2016	2021	2026	2031
SOUTH WEST QLD							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	1	1	1	1	1	1
5-8 metres	50.0%	0	0	0	0	0	0
8-10 metres	25.0%	0	0	0	0	0	0
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.2%	0	0	0	0	0	0
Boats w/o sails							
<3 metres	100.0%	23	23	25	27	28	29
3-5 metres	100.0%	177	178	189	202	211	221
5-8 metres	85.0%	32	32	33	35	37	38
8-10 metres	50.0%	1	1	1	1	1	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	96.6%	232	234	248	265	277	289
Total Boats							
<3 metres	100.0%	23	23	25	27	28	29
3-5 metres	99.9%	178	179	190	203	212	221
5-8 metres	85.0%	32	32	33	35	37	38
8-10 metres	50.0%	1	1	1	1	1	1
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres		0	0	0	0	0	0
>25 metres		0	0	0	0	0	0
Total	96.3%	233	234	248	265	277	289
SEQ NORTH							
Sail Boat							
<3 metres	100.0%	7	7	8	9	9	9
3-5 metres	90.0%	135	136	147	156	162	168
5-8 metres	50.0%	400	405	440	468	489	506
8-10 metres	25.0%	133	134	146	155	162	167
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	26.2%	687	694	694	800	800	864
Boats w/o sails							
<3 metres	100.0%	3,053	3,117	3,565	3,975	4,289	4,575
3-5 metres	100.0%	43,701	44,514	50,274	55,532	59,565	63,232
5-8 metres	85.0%	10,847	11,036	12,375	13,597	14,534	15,386
8-10 metres	50.0%	429	437	493	543	582	617
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.0%	58,030	59,104	66,707	73,646	78,971	83,810
Total Boats							
<3 metres	100.0%	3,060	3,124	3,573	3,984	4,298	4,584
3-5 metres	100.0%	43,835	44,650	50,421	55,687	59,728	63,399
5-8 metres	82.9%	11,247	11,441	12,815	14,065	15,023	15,893
8-10 metres	40.4%	562	571	638	698	744	785
10-12 metres	0.0%	0	0	0	0	0	0

	Proportion	2010	2011	2016	2021	2026	2031
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	91.2%	58,717	59,798	67,401	74,446	79,770	84,674
SEQ SOUTH							
Sail Boat							
<3 metres	100.0%	12	13	15	17	19	22
3-5 metres	90.0%	131	133	152	172	192	213
5-8 metres	50.0%	308	315	365	419	474	530
8-10 metres	25.0%	104	106	122	138	155	173
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	28.5%	555	568	654	746	841	938
Boats w/o sails							
<3 metres	100.0%	3,975	4,110	5,020	6,046	7,064	8,157
3-5 metres	100.0%	38,431	39,590	47,396	56,206	64,949	74,335
5-8 metres	85.0%	12,116	12,483	14,954	17,742	20,510	23,480
8-10 metres	50.0%	701	723	871	1,038	1,203	1,381
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	91.5%	55,223	56,907	68,241	81,031	93,726	107,353
Total Boats							
<3 metres	100.0%	3,988	4,123	5,034	6,063	7,083	8,179
3-5 metres	100.0%	38,561	39,724	47,548	56,377	65,141	74,548
5-8 metres	83.6%	12,424	12,799	15,319	18,161	20,983	24,010
8-10 metres	44.3%	805	829	993	1,176	1,359	1,554
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	89.6%	55,779	57,475	68,895	81,777	94,566	108,290
INTERSTATE							
Sail Boat							
<3 metres	100.0%	0	0	0	0	0	0
3-5 metres	90.0%	2	2	2	3	4	4
5-8 metres	50.0%	8	8	11	15	19	23
8-10 metres	25.0%	4	4	6	8	11	13
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	12.7%	14	14	20	26	33	40
Boats w/o sails							
<3 metres	100.0%	37	38	49	61	73	86
3-5 metres	100.0%	366	384	486	614	730	863
5-8 metres	85.0%	110	116	150	191	229	273
8-10 metres	50.0%	11	12	15	19	23	28
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	81.4%	524	550	700	886	1,055	1,249
Total Boats							

	Proportion	2010	2011	2016	2021	2026	2031
<3 metres	75.6%	37	38	49	61	73	86
3-5 metres	75.2%	368	386	489	617	734	867
5-8 metres	59.5%	118	124	161	207	248	296
8-10 metres	27.6%	15	16	21	28	34	41
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	71.6%	538	565	719	913	1,088	1,289
QUEENSLAND							
Sail Boat							
<3 metres	100.0%	29	29	33	36	40	43
3-5 metres	90.0%	428	437	496	561	623	692
5-8 metres	50.0%	1,111	1,135	1,295	1,461	1,618	1,788
8-10 metres	25.0%	408	416	472	528	582	639
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	25.7%	1,971	2,012	2,191	2,565	2,756	3,117
Boats w/o sails							
<3 metres	100.0%	10,395	10,724	12,787	14,987	16,989	19,095
3-5 metres	100.0%	166,646	171,563	201,180	232,345	260,012	289,121
5-8 metres	85.0%	40,693	41,810	48,674	55,938	62,475	69,348
8-10 metres	50.0%	1,641	1,689	1,987	2,307	2,600	2,908
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	94.1%	219,375	225,785	264,628	305,576	342,076	380,471
Total Boats							
<3 metres	100.0%	10,423	10,753	12,820	15,024	17,029	19,138
3-5 metres	100.0%	167,074	171,999	201,677	232,906	260,635	289,813
5-8 metres	83.4%	41,804	42,945	49,969	57,399	64,093	71,136
8-10 metres	41.7%	2,050	2,105	2,459	2,835	3,181	3,547
10-12 metres	0.0%	0	0	0	0	0	0
12-15 metres	0.0%	0	0	0	0	0	0
15-25 metres	0.0%	0	0	0	0	0	0
>25 metres	0.0%	0	0	0	0	0	0
Total	91.9%	221,346	227,797	266,819	308,141	344,832	383,588

Source: Economic Associates estimates

APPENDIX C

BOAT LANE DEMAND – UNCONGESTED OPERATIONS VERSUS CONGESTED OPERATIONS

Average Demand Scenario

Table C.1: Boat Lane Demand – Base Case with Average Demand, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Unhampered Boat Movements (30 boats / lane / day)						
Cape York	4	4	5	5	5	5
North West QLD	5	5	5	5	5	5
Cairns	44	45	48	51	54	57
Townsville	46	46	52	56	59	62
Central West QLD	1	1	1	1	1	1
Emerald	7	7	8	8	9	10
Mackay	34	35	41	44	47	49
Whitsunday	12	12	14	15	16	17
Gladstone	20	21	23	25	28	30
Rockhampton	22	22	24	25	27	28
North Wide Bay	23	24	25	27	29	31
South Wide Bay	36	37	41	44	47	50
Darling Downs	18	18	20	21	23	24
South Central	5	5	6	6	6	6
South West QLD	1	1	1	1	1	1
SEQ North	156	157	171	182	191	198
SEQ South	135	137	157	177	199	220
Interstate	1	1	2	2	2	2
Queensland	571	580	639	695	745	795
Congested Boat Movements (50 boats / lane / day)						
Cape York	3	3	3	3	3	3
North West QLD	3	3	3	3	3	3
Cairns	27	27	29	30	32	34
Townsville	27	28	31	34	36	37
Central West QLD	1	1	1	1	1	1
Emerald	4	4	5	5	5	6
Mackay	20	21	24	27	28	29
Whitsunday	7	7	8	9	9	10
Gladstone	12	13	14	15	17	18
Rockhampton	13	13	14	15	16	17
North Wide Bay	14	14	15	16	17	19
South Wide Bay	22	22	24	26	28	30
Darling Downs	11	11	12	13	14	14
South Central	3	3	3	3	4	4
South West QLD	0	0	0	0	0	0
SEQ North	93	94	103	109	114	119
SEQ South	81	82	94	106	119	132
Interstate	1	1	1	1	1	1
Queensland	342	348	384	417	447	477

Source: Economic Associates estimates

Table C.2: Boat Lane Demand – Increasing Incidence of Boat Ownership with Average Demand, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Unhampered Boat Movements (30 boats / lane / day)						
Cape York	5	5	5	6	7	7
North West QLD	5	5	5	6	6	6
Cairns	45	45	50	55	60	65
Townsville	46	48	57	65	72	79
Central West QLD	1	1	1	1	1	2
Emerald	7	7	9	11	12	14
Mackay	35	37	45	54	60	65
Whitsunday	12	13	16	18	21	23
Gladstone	21	22	28	34	41	49
Rockhampton	22	23	28	33	38	44
North Wide Bay	24	24	29	34	39	44
South Wide Bay	37	38	44	50	55	61
Darling Downs	18	19	22	26	30	33
South Central	6	6	7	8	10	11
South West QLD	1	1	1	1	1	1
SEQ North	157	159	180	199	213	226
SEQ South	149	153	184	218	252	289
Interstate	1	2	2	2	3	3
Queensland	590	607	712	822	920	1,023
Congested Boat Movements (50 boats / lane / day)						
Cape York	3	3	3	4	4	4
North West QLD	3	3	3	3	4	4
Cairns	27	27	30	33	36	39
Townsville	28	29	34	39	43	47
Central West QLD	1	1	1	1	1	1
Emerald	4	4	5	6	7	9
Mackay	21	22	27	32	36	39
Whitsunday	7	8	9	11	12	14
Gladstone	13	13	17	20	24	29
Rockhampton	13	14	17	20	23	26
North Wide Bay	14	15	17	20	23	27
South Wide Bay	22	23	26	30	33	36
Darling Downs	11	11	13	16	18	20
South Central	3	3	4	5	6	7
South West QLD	0	0	0	0	0	0
SEQ North	94	96	108	119	128	135
SEQ South	89	92	110	131	151	173
Interstate	1	1	1	1	2	2
Queensland	354	364	427	493	552	614

Source: Economic Associates estimates

High Demand Scenario

Table C.3: Boat Lane Demand – Base Case with High Demand, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Unhampered Boat Movements (30 boats / lane / day)						
Cape York	8	8	8	8	9	9
North West QLD	8	9	8	8	9	9
Cairns	78	78	84	89	94	99
Townsville	80	81	91	98	104	109
Central West QLD	2	2	2	2	2	2
Emerald	12	12	13	14	16	17
Mackay	60	62	71	78	82	85
Whitsunday	21	21	24	26	27	29
Gladstone	36	37	40	44	48	53
Rockhampton	38	39	42	44	47	50
North Wide Bay	41	41	44	47	50	54
South Wide Bay	64	65	71	77	82	87
Darling Downs	32	32	35	37	40	42
South Central	9	9	10	10	10	10
South West QLD	1	1	1	1	1	1
SEQ North	272	275	299	319	334	346
SEQ South	236	240	275	311	348	386
Interstate	2	2	3	3	3	3
Queensland	999	1,015	1,119	1,216	1,305	1,391
Congested Boat Movements (50 boats / lane / day)						
Cape York	5	5	5	5	5	5
North West QLD	5	5	5	5	5	5
Cairns	47	47	50	53	56	60
Townsville	48	49	54	59	62	65
Central West QLD	1	1	1	1	1	1
Emerald	7	7	8	9	9	10
Mackay	36	37	43	47	49	51
Whitsunday	13	13	14	16	16	17
Gladstone	22	22	24	26	29	32
Rockhampton	23	23	25	27	28	30
North Wide Bay	25	25	26	28	30	32
South Wide Bay	38	39	43	46	49	52
Darling Downs	19	19	21	22	24	25
South Central	6	6	6	6	6	6
South West QLD	1	1	1	1	1	1
SEQ North	163	165	179	191	200	208
SEQ South	141	144	165	186	209	231
Interstate	1	1	2	2	2	2
Queensland	599	609	671	729	783	835

Source: Economic Associates estimates

Table C.4: Boat Lane Demand – Increasing Incidence of Boat Ownership with High Demand, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Unhampered Boat Movements (30 boats / lane / day)						
Cape York	8	8	9	10	11	13
North West QLD	8	9	9	10	10	11
Cairns	78	79	88	97	105	114
Townsville	81	83	99	114	126	138
Central West QLD	2	2	2	2	3	3
Emerald	12	13	15	19	22	25
Mackay	61	64	79	94	104	114
Whitsunday	22	22	27	32	36	41
Gladstone	37	39	48	60	71	85
Rockhampton	39	41	49	58	67	77
North Wide Bay	42	43	50	59	68	78
South Wide Bay	65	66	77	87	96	106
Darling Downs	32	33	39	46	52	58
South Central	10	10	12	15	17	19
South West QLD	1	1	1	1	1	1
SEQ North	274	279	315	347	372	395
SEQ South	260	268	322	382	441	505
Interstate	3	3	3	4	5	6
Queensland	1,033	1,063	1,245	1,438	1,609	1,790
Congested Boat Movements (50 boats / lane / day)						
Cape York	5	5	5	6	7	8
North West QLD	5	5	5	6	6	7
Cairns	47	48	53	58	63	69
Townsville	48	50	59	68	76	83
Central West QLD	1	1	1	1	2	2
Emerald	7	8	9	11	13	15
Mackay	36	38	48	56	63	68
Whitsunday	13	13	16	19	22	24
Gladstone	22	23	29	36	43	51
Rockhampton	23	24	29	35	40	46
North Wide Bay	25	26	30	35	41	47
South Wide Bay	39	40	46	52	58	64
Darling Downs	19	20	23	27	31	35
South Central	6	6	7	9	10	11
South West QLD	1	1	1	1	1	1
SEQ North	164	167	189	208	223	237
SEQ South	156	161	193	229	265	303
Interstate	2	2	2	3	3	4
Queensland	620	638	747	863	966	1,074

Source: Economic Associates estimates

Peak Demand Scenario

Table C.5: Boat Lane Demand – Base Case with Peak Demand, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Unhampered Boat Movements (30 boats / lane / day)						
Cape York	11	11	11	12	12	13
North West QLD	12	12	12	12	12	13
Cairns	111	112	119	127	134	142
Townsville	114	116	129	140	148	155
Central West QLD	3	3	3	3	3	3
Emerald	17	17	19	21	22	24
Mackay	85	89	101	111	117	122
Whitsunday	30	31	34	37	39	41
Gladstone	51	52	58	63	69	76
Rockhampton	54	55	59	63	67	71
North Wide Bay	58	59	63	67	72	77
South Wide Bay	91	93	101	109	117	125
Darling Downs	45	46	49	53	57	60
South Central	13	13	14	14	15	15
South West QLD	2	2	2	2	2	2
SEQ North	389	393	427	456	477	494
SEQ South	337	343	392	444	497	551
Interstate	3	4	4	4	4	4
Queensland	1,427	1,451	1,599	1,737	1,864	1,988
Congested Boat Movements (50 boats / lane / day)						
Cape York	7	7	7	7	7	8
North West QLD	7	7	7	7	7	8
Cairns	67	67	72	76	80	85
Townsville	68	70	78	84	89	93
Central West QLD	2	2	2	2	2	2
Emerald	10	10	11	12	13	14
Mackay	51	53	61	67	70	73
Whitsunday	18	18	20	22	24	25
Gladstone	31	31	35	38	42	45
Rockhampton	33	33	36	38	40	43
North Wide Bay	35	35	38	40	43	46
South Wide Bay	55	56	61	66	70	75
Darling Downs	27	28	30	32	34	36
South Central	8	8	8	9	9	9
South West QLD	1	1	1	1	1	1
SEQ North	233	236	256	273	286	296
SEQ South	202	206	235	266	298	331
Interstate	2	2	2	2	3	3
Queensland	856	870	959	1,042	1,118	1,193

Source: Economic Associates estimates

Table C.6: Boat Lane Demand – Increasing Incidence of Boat Ownership with Peak Demand, 2010 to 2031

	2010	2011	2016	2021	2026	2031
Unhampered Boat Movements (30 boats / lane / day)						
Cape York	11	11	13	15	16	18
North West QLD	12	13	13	14	15	16
Cairns	112	113	126	139	150	163
Townsville	115	119	142	163	180	197
Central West QLD	3	3	3	3	4	4
Emerald	17	18	22	27	31	36
Mackay	87	91	113	134	149	163
Whitsunday	31	32	39	46	52	58
Gladstone	53	55	69	85	102	121
Rockhampton	56	58	70	84	96	110
North Wide Bay	60	61	72	84	97	111
South Wide Bay	92	95	109	124	138	152
Darling Downs	46	47	56	65	74	83
South Central	14	14	17	21	24	27
South West QLD	2	2	2	2	2	2
SEQ North	391	399	449	496	532	564
SEQ South	372	383	459	545	630	722
Interstate	4	4	5	6	7	9
Queensland	1,476	1,519	1,779	2,054	2,299	2,557
Congested Boat Movements (50 boats / lane / day)						
Cape York	7	7	8	9	10	11
North West QLD	7	8	8	8	9	10
Cairns	67	68	75	83	90	98
Townsville	69	71	85	98	108	118
Central West QLD	2	2	2	2	2	2
Emerald	10	11	13	16	19	22
Mackay	52	55	68	81	89	98
Whitsunday	18	19	23	28	31	35
Gladstone	32	33	41	51	61	73
Rockhampton	33	35	42	50	58	66
North Wide Bay	36	37	43	51	58	67
South Wide Bay	55	57	66	75	83	91
Darling Downs	28	28	33	39	44	50
South Central	8	9	10	13	14	16
South West QLD	1	1	1	1	1	1
SEQ North	235	239	270	298	319	339
SEQ South	223	230	276	327	378	433
Interstate	2	2	3	4	4	5
Queensland	885	911	1,067	1,233	1,379	1,534

Source: Economic Associates estimates

Appendix B

GIS Multi Criteria Analysis Methodology

GHD Pty Ltd

Report for Recreational Boating Facilities Demand Forecasting Study

GIS MCA Methodology

August 2011

Contents

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Appendices

1. Introduction

GHD and Economic Associates were commissioned by Transport and Main Roads (TMR) to undertake a recreational boating demand forecasting project for the state of Queensland. The effect of building infrastructure on the natural and built environment (including social and cultural heritage) has potential to have a significant environmental and social impact. Consequently, careful investigation of site areas has considerable importance in minimising a range of potential negative environmental impacts while maximising existing complementary infrastructure and environmental dynamics.

Recognising this, TMR requested an investigation to determine demand (high, medium, low) and address viable opportunities to position boating facilities that will maximise positive economic, environmental and social outcomes for the state and region.

In response, GHD has applied a systematic and transparent approach to assess the suitability of the study area for the purpose of constructing boating facilities using a Multi-Criteria Analysis (MCA) methodology combined with desktop-based Geographic Information Systems (GIS) technology to undertake the analysis required by the project scope. This methodology is referred to as the INDEGO (Infrastructure Development Geospatial Options) method.

This report documents the INDEGO MCA methodology used to assess the site suitability of the project study area. A 540,000 sq km study area was selected based on a 100km by 150km grid system, composed of 36 tiles, constructed around the distribution of existent boating infrastructure facilities. A range of constraints and opportunities identified by the project team were developed, using GIS data sets that represent a number of environmental, physical, social and infrastructure themes.

The INDEGO method provides an integrative approach by combining the constraints and opportunities identified in the natural and built environment combined with social and cultural heritage criteria. The results of this process produce a suitability surface where it is possible to observe the cumulative effects of constraints and opportunities in order to identify optimum locations for boating facility development.

These constraints and opportunities were combined in order to develop the site suitability surface which formed the basis for the codification and prioritisation of sites.

The results of the MCA component of the investigations has helped inform the decision making processes related to defining and prioritising suitable locations for the development of new boating facilities or redevelopment of existing boating facilities. The primary goal of utilising a GIS based MCA for the Recreational Boating Facilities Demand Forecasting Project was to provide tabular and visual outputs to help prioritise development efforts while minimising potential impacts related to environmental, social, physical and infrastructure related constraints.

2. INDEGO Methodology

Throughout GHD, multi-criteria analysis using Geographic Information Systems (GIS) has proven valuable in the quantitative assessment and evaluation of issues associated with determining appropriate locations for infrastructure development. GHD uses a methodology known as Infrastructure Development Geospatial Options (INDEGO), which combines MCA with GIS technology to quantitatively assess and evaluate the complex physical, environmental, infrastructure and social issues that are associated with determining appropriate locations for infrastructure development.

INDEGO is a proprietary GIS-based MCA methodology that GHD has developed in order to achieve a basic level of standardisation across the practice to enable the application of a transparent, defendable, robust and rigorous methodology to all projects that utilise a GIS-based MCA.

MCA describes any structured approach used to determine overall preferences among alternative options, where the options accomplish several objectives. In MCA, desirable objectives are specified and corresponding attributes or indicators are identified. The actual measurement of indicators is based on quantitative analysis, achieved via rating and weighting a wide range of impact categories and criteria.

MCA is based on the concept that decision-makers usually attempt to satisfy multiple objectives simultaneously commonly reflected in the triple bottom line approach.

The INDEGO methodology includes all of the inherent advantages of MCA as it:

- Is capable of accommodating multiple criteria.
- Can assess mixed data formats (quantitative and qualitative).
- Allows input from a variety of stakeholders or ‘specialists’.
- Allows justification of consistency of decisions.
- Involves an integrated and systematic, multidisciplinary approach.
- Applies a rational method of decision analysis.
- Provides a robust, and transparent repeatable, quantitative assessment.
- Permits the development of geographically defined alternative scenarios.
- Is time and cost effective.
- Is flexible enough to allow regional and site specific analysis.
- Provides a record of the decision making process for future reference.

The outcome of running INDEGO over a region of interest is a constraints map, which shows the overall suitability of land against specific selection criteria. Options that are most suitable against the selection criteria can then be considered in more detail through the integration of additional spatial and non-spatial data relating to those sites.

2.1 Overview

The methodology used by GHD combines traditional MCA techniques with desktop-based GIS analysis to generate a site suitability surface using identified key criteria. Within this framework, MCA techniques are used to rate and weight the performance criteria guiding the site suitability modelling process.

To meet the requirements of the study, an initial set of suitability criteria were selected. These criteria were reviewed in a workshop where the criteria were rated and weighted. A matrix-based approach is used to facilitate a group of discipline specific stakeholders to work towards agreement on the relative level of influence that each of the inputs should have on the model. The results were then reviewed by the GHD project team and adjusted as per the advice of GHD's inter-disciplinary team of consultants.

Traditional engineering and infrastructure criteria were assessed in combination with environmental and social criteria. Financial criteria were not considered per se as part of this high-level suitability study. Typically, engineering and infrastructure criteria represent those aspects for which an engineering solution exists, and the main consideration is the cost of implementing that solution. Environmental and social criteria represent aspects that have an indirect financial impact, for example lifestyle and amenity; conservation significance; or time related to approvals processes. The MCA approach allows differing types of criteria to be considered using the same assessment framework, based on the ability to map suitability criteria to available spatial data sources.

The adoption of MCA enabled the site selection process to take a balanced, transparent and traceable approach that considers environmental, social, physical and built environment evaluation criteria while supporting a range of inputs from project stakeholders.

2.2 Data Review and Selection

The spatial datasets utilised for the boating facility location suitability assessment are primarily sourced from TMR or DERM Holdings and from those currently licensed to, or acquired by GHD. The datasets are limited to State and Federal Government geospatial datasets with one locally derived dataset (10 metre contours). While this scale of information is acceptable for high-level options assessment, it is recognised that detailed, large scale datasets available through specific discipline field investigations provide an improved set of information for more detailed options assessments.

2.2.1 Data Selection Criteria

Selection of geospatial datasets for use in the modelling process is determined by a number of factors, including:

- Representation of criteria, in terms of both constraints and opportunities.
- A consistent level of coverage across the study area.
- Availability of data from Local, State and Federal Government sources.
- Accuracy and currency.

2.2.2 Scale of Inputs and Modelling Resolution

Suitability modelling utilises an overlay approach that requires all data to be converted into cell-based grids. The choice of cell size is determined by a number of factors, including:

- study objectives;
- project extent;
- processing workload / available time; and
- scale and accuracy of the inputs.

In general, a higher resolution provides improved representation of criteria, but typically at a higher processing cost. However, a balance is required depending on the range of accuracy and capture scales for each geospatial dataset as these can vary significantly. For example, digital cadastral land parcel polygons can be surveyed accurately to within metres, whereas regional ecosystem polygons are typically based on 1:100,000 scale mapping, with uncertainties in the order of 10s to 100s of metres.

For this study, it is desirable to define the environmental criteria and existing infrastructure as accurately as possible. However, the size of the study area combined with the time required to process data layers of higher complexity (i.e. slope) was limiting. While taking into consideration the associated capture scale constraints a medium modelling resolution was considered justified.

A 25m by 25m cell size resolution is a medium modelling resolution that provides for sufficient delineation of linear infrastructure features (roads, utilities) and the spatial characteristics of environmental constraints such as sensitive habitats (e.g. regional ecosystem, wetlands, essential habitat). As a result, a 25 metre resolution was the cell size selected for the raster based analysis.

2.3 MCA Limitations

It should be noted that while the MCA is a powerful desktop tool for screening study areas and generating suitability surfaces, there are a number of specific limitations to this approach, including:

- Inability to represent all of the aspects that determine suitability for a site in a geographic format.
- Lack of data at a suitable scale relating to site specific considerations.
- Accuracy and currency of the data.

This work is based on a high-level assessment and further detailed analysis for specific suitability is recommended. Subsequent field-based investigations and alternatives process are considered necessary to verify and validate the outputs of the MCA, in addition to the various considerations that cannot be represented through this approach. The MCA could be improved via the inclusion of more site-specific data collected during field investigations.

2.4 Performance Rating in the INDEGO Model

Rating and weighting of the input criteria form the basis for the MCA process and has a direct and significant bearing on the output of the site suitability modelling process. Both ratings and weightings reflect the preferences of the decision makers and theoretically are the only subjective elements of the assessment process.

The performance rating reflects the importance of each criterion in siting the infrastructure. This is an important part of the process as poorly rated criteria have the potential to skew the model results. All attributes of a criterion within the “area of interest” are considered during the performance rating process.

While past ratings can be used to inform the analysis team, each criterion requires a review in the context of the proposed infrastructure. The agreed performance ratings are recorded in a performance rating spreadsheet.

The standard rating schema established for the INDEGO model is grouped into five categories (highly unsuitable, highly constrained, moderately constrained, highly suitable and neutral (absence of constraints)). These categories are described in this section.

2.4.1 Highly Unsuitable

The “highly unsuitable” performance rating represents “no-go” areas: lands whose significance to conservation and biodiversity or physical characteristics are such that they should not be disturbed by the proposed project. All areas identified as “Highly unsuitable” are rated highly in the model. This high rating reflects the level of impact of the particular constraint. Higher ratings are indicative of greater impact.

In the current study this includes criteria such as areas of restricted access; access to transport or services greater than 1km; conservation reserves; mining tenure and national parks; endangered regional ecosystem vegetation; essential habitat; dugong protection areas; DOI and RAMSAR wetlands; and a range of conceptual criteria gathered during the demand study that would prevent the development of a boating facility.

2.4.2 Highly Constrained

The performance rating of “highly constrained” is assigned to areas such as: protected areas of moderate conservation that would require special approvals. These lands generally represent habitats of moderate to high integrity and impacts are likely to generate less social and environmental consequences than communities identified as “Highly Unsuitable”. Typically, some commercial resource-exploitation uses are permitted.

In the current study this category includes "of concern" regional ecosystem vegetation; Wetland Protection Area (WPA) trigger areas; Wetland Management Area (WMA) trigger areas; forest and indigenous reserves; access to transport or services between 500m and 1km; Lot area less than 1000 square metres; stream order less than 3; high likelihood of acid sulfate soils; bathymetry greater than 0m; and a range of conceptual criteria gathered during the demand study that would strongly inhibit the development of a boating facility.

2.4.3 Moderately Constrained

The performance rating of “moderately constrained” is assigned to areas of significance that would not prevent or strongly inhibit development but would require minor approvals or mitigation efforts.

In the current study this category includes "Not of Concern" regional ecosystem vegetation. Particular types of tenure such as freehold, forest reserve or lands leased; acid sulfate soils that require mitigation; lot size between 1,000 and 5,000 square metres; access to transport or services between 250m and 500m; stream order ranging between 4 and 6; bathymetry between -3m and 0m; and a range of conceptual criteria gathered during the demand study that would require mitigation.

2.4.4 Absence of Constraints (Neutral)

This performance rating is assigned to all other non-classified lands within the proposed study extent which don’t have potential to be adversely impacted upon by the project but haven’t been identified as opportunities either. These include areas outside the extent of other constraints identified in the previous sections.

2.4.5 Highly Suitable

This performance rating is assigned to areas within the proposed study extent, which are highly suitable for the placement of the particular type of infrastructure that is in the process of being investigated.

In the current study this category includes criteria such as proximity to transportation; and utilities within 250m; within a 200m buffer of major watercourses and major waterbodies; absence of acid sulfate soil; bathymetry between -10 metres and -3 metres; Less than or equal to 1 Native Title Claim; Marine Zoning designated as "General Use"; Tenure classified as "State Land"; "Easement" or related to "Harbour"; and lot area greater than 5,000 square metres.

2.5 Criteria Weighting in the INDEGO Model

In the modelling process, the relative influence of the criteria performance ratings are modified by the weight. As a result, the application of each criterion weight allows the differentiation between similar performance ratings across themes.

Upon allocation of the ratings, each criterion is considered in relation to each other criterion in a pair-wise comparison. This enables the allocation of the relative importance of each criterion for use in the generation of the constraints and opportunities mapping outcome.

The result is that, if only considering two inputs with the same ratings and all other factors are equal, the model tends to select for an area that is contained within the lower weighting rather than an area with a higher weighting.

While the above is a simplification of what actually takes place in the model, it reflects the underlying logic that is applied simultaneously across all inputs on a grid cell basis when determining the suitability of a site.

2.6 INDEGO Deliverable Products

A number of deliverables are generated during the process of performing an INDEGO analysis. Due to the size of the study area the constraints and suitability surface mapping was developed in an interactive digital mapping environment. The deliverable products are listed as follows:

- One state scale 'Bio-Catchment' map.
- Five regional scale 'Demand' maps.
- Twenty-five 1:1,000 scale maps of 'High Priority' site locations with aerial imagery.
- Twenty-five 1:2,500 scale maps of 'Medium Priority' site locations with suitability surface and aerial imagery.
- Five regional scale 'Low Priority' site location maps.
- A series of theme based tables defining the criteria rating schema.
- A table summarising the criteria weighting schema.
- A report documenting the methodology.

All of the deliverables are an integral part of understanding the model outputs, verifying the accuracy of the results and producing a quality product that provides a rigorous information resource to support decision making processes.

3. Site Suitability Surface Construction

Using the methodology outlined in Section 2, criteria were defined, rated and weighted in order to establish the parameters for the construction of a suitability surface. The purpose of the suitability surface is to provide a basis for assessing the relative suitability of proposed and existent site locations for the development or redevelopment boating facilities.

The process of constructing a suitability surface involved the following:

- Establishing 36 study area locations 100m X 150m based on existent and proposed site distribution.
- Data collection, merging like data sets (i.e. wetlands), and clipping to individual study extents.
- Assigning ratings, weights and "suitability" codes (weighted ratings) to the criteria;
- Converting vector data to raster data based on "suitability" code.
- Combining raster data layers by performing a sum operation with cell statistics tool.
- Reclassifying "suitability surface" based on Natural Breaks (Jenks) classification method.
- Clipping "suitability surface" to a 250 metre buffer of major waterways.

This section provides an overview of the criteria ratings and weightings assigned for the purpose of assessing the suitability of a site location.

3.1 Criteria Performance Rating

While the primary focus is on the aspects that would geographically constrain the suitability of boating facility development, the process also identifies a selection of themes that define opportunities to develop the boating facility infrastructure in relation to existing infrastructure.

Performance ratings identified for each of the suitability criterion are listed as follows:

- highly Unsuitable (999);
- highly Constrained (40);
- moderately Constrained (20);
- absence of Constraints (Neutral) (10); and
- highly suitable (1).

In determining the performance ratings, the following issues are considered:

- Legislative requirements, for example, requirements to obtain permits or environmental approvals.
- Environmental values and sensitivities and imperative to protect ecosystems, habitats, and species.
- Social values and sensitivities in relation to residential areas, demand, tourism and land ownership.
- Construction related physical limitations of boating facility infrastructure.
- Developable land to facilitate proposed development in site area.
- Planned and existing transportation corridors for access considerations.
- Proximity to existing utilities to deliver utility services to the boating facility.

3.2 Site Suitability Criteria

The primary source of data was gathered through a review of State and Federal Government datasets over the study area. However, 10 metre contour data was collected on a local government scale to increase the accuracy of the slope data. Criteria were primarily selected as a basis of the suitability surface based on the Draft State Wide Methodology Future Maritime Development Areas Queensland, Department of Environment and Resource Management.

Criteria related to other relevant factors were identified by the project team as a result of community consultation, engineering factors and planning related experience. This section provides an overview of the specific criteria selected for this study; any issues associated with particular criteria; the characteristics of the criteria and associated ratings that were assigned to the criteria.

3.2.1 Environmental Criteria

Environmental criteria include environmental features that would be impacted by the development of a boating facility. The primary criteria involved in the environmental review were limited to the available data over the entire study area.

The environmental values included in this study are summarised as follows:

- Essential Habitat, Dugong Protection Areas and Fish Habitat;
- Regional Ecosystems and High Value Regrowth;
- Wetlands;
- Protected Areas of Queensland; and
- Reserves.

Table 1 provides an overview of the criteria with a description of the ratings as they relate to the characteristics of the particular criterion.

Table 1 Environment Criteria Rating

Mapped Condition	Highly Suitable (1)	Absence of Constraints (10)	Moderately Constrained (20)	Highly Constrained (40)	Highly Unsuitable (999)
Remnant Vegetation & Certified Amendments/High Value Regrowth	Non-native	Non-remnant	Not of concern	Of Concern (dominant and sub-dominant)	Endangered (dominant and sub-dominant)
Essential Habitat, Dugong Protection Area, Fish Habitat					Either Essential Within Dugong Protection Area Management Type A
Wetlands				WPA Buffer WPA Trigger WMA Buffer WMA Trigger	DOI Wetland RAMSAR

Reserves	Water Supply Reserve	Forestry Reserve Indigenous Reserve	Nature Conservation Reserve
Protected Areas of Queensland Estate	State Forests Not Protected Estate		National Parks Forest Reserve Conservation Park Nature Refuge Resources Reserve Timber Reserve

3.2.2 Physical Criteria

Physical criteria include physical landscape features that would affect the constructability of a boating facility. The primary criteria involved in the physical review were limited to the available data over the entire study area.

The physical data layers incorporated into the site assessment process are listed as follows:

- Bathymetry;
- Waterways;
- Potential Acid Sulfate Soils; and
- Slope.

Due to the size of the study area slope analysis was limited to interpolation based on 10 metre contours and while it was included in the site assessment process it was not integrated into the "Suitability Surface". Table 2 provides an overview of the criteria with a description of the ratings as they relate to the characteristics of the particular criterion.

Table 2 Physical Criteria Rating

Mapped Condition	Highly Suitable (1)	Absence of Constraints (10)	Moderately Constrained (20)	Highly Constrained (40)	Highly Unsuitable (999)
Slope	>5%		5-10%	10-15%	>15%
Watercourses & Water Bodies	Major (200m buffer) 7-9 Stream Order Waterbodies			Minor 4-6 Stream Order	0-3 Stream Order
Potential Acid Sulfate Soils	Low Probability		Medium Probability	High Probability	
Bathymetry	Below -3 metres		-3 - 0 metres	> 0 metres	

3.2.3 Social Criteria

Social criteria include factors that would require consideration or approvals prior to the development of a boating facility. The primary criteria involved in the social impact review were limited to the available data over the entire study area.

The social data layers incorporated into the site assessment process are listed as follows:

- Native Title Claim;
- Marine Zoning and Parks;
- Cultural Heritage;
- Cadastre – Tenure; and
- Land Use Planning (QLUMP).

Due to the size of the study area the QLUMP (Queensland Land Use Planning Mapping Project) is the best level of resolution available for review of planning factors. Local Government Planning Schemes would provide a greater level of detail and should be incorporated into future analysis. Table 3 provides an overview of the criteria with a description of the ratings as they relate to the characteristics of the particular criterion.

Table 3 Social Criteria Rating

Mapped Condition	Highly Suitable (1)	Absence of Constraints (10)	Moderately Constrained (20)	Highly Constrained (40)	Highly Unsuitable (999)
Native Title	One Native Title Claim or No Native Title Claim		Two Native Title Claim	Three Native Title Claim	
Heritage Register and World Heritage					Heritage Site
Marine Zoning	General Use		Medium Probability	Buffer Conservation Park Estuarine Conservation Zone	Commonwealth Island Habitat Protection Marine National Park Preservation Scientific Research (Closed to Public Access)
Land Use Planning (QLUMP)	Lake Reservoir/Dam River		Plantation Forestry Cropping Perennial Horticulture Seasonal Horticulture	Grazing Natural Vegetation Production Forestry Intensive Horticulture Intensive	Nature Conservation Managed Resource Protection Other minimal use

Mapped Condition	Highly Suitable (1)	Absence of Constraints (10)	Moderately Constrained (20)	Highly Constrained (40)	Highly Unsuitable (999)
			Irrigated Plantation Forestry Irrigated Cropping Irrigated Perennial Horticulture Irrigated Seasonal Horticulture	Animal Production Services Utilities	Manufacturing and Industrial Residential Transport and Communication Mining Waste Treatment and Disposal Channel/Aqueduct Marsh/Wetland Estuary/Coastal Waters
DCDB Tenure	Easement Boat Harbours Port and Harbour Boards Reserve State Forest State Land		Freehold Forest Reserve Lands Leased	Profit a Prendre	Commonwealth Acquisition Covenant Housing Land Industrial Estates Main Road Mines Tenure National Park Railway Timber Reserve Water Resource Other

3.2.4 Infrastructure Criteria

Infrastructure criteria include factors that affect the constructability or accessibility to potential boating facility site locations. The primary criteria involved in the infrastructure review were limited to the available data over the entire study area.

The infrastructure data layers incorporated into the site assessment process are listed as follows:

- Site Accessibility (Road Infrastructure);
- Utility Services (Pipelines, Powerlines);
- Cadastre - Lot Size; and
- Restricted Areas.

Due to the size of the study area and lack of utility service data that consistently covered the study area this criterion was assigned a lower weighting. Table 4 provides an overview of the criteria with a description of the ratings as they relate to the characteristics of the particular criterion.

Table 4 Infrastructure Criteria Rating

Mapped Condition	Highly Suitable (1)	Absence of Constraints (10)	Moderately Constrained (20)	Highly Constrained (40)	Highly Unsuitable (999)
Accessibility	Within 250m of a road reserve		Within 250 - 500m of a road reserve State Controlled Road	Within 500m - 1km of a road reserve	> 1km of a road reserve
Utility Services	Within 250m of utility services		Within 250 - 500m of utility services	Within 500m - 1km of utility services	> 1km of utility services
Restricted Areas					Defence Area Military Training Area Prohibited Area
DCDB - Lot Size	> 5000 sq m		1000 - 5000 sq m	<1000 sq m	<1000 sq m

3.3 Criteria Performance Weighting

In the modelling process, the relative influence of the criteria performance ratings are modified by the criteria weight. As a result, the application of each criterion weight allows the differentiation between similar performance ratings across themes. A group of discipline specific stakeholders groups the criteria into categories and develops consensus on the relative level of influence that each of the inputs should have on the model. The weighting schema established for this particular study is summarised in Table 5.

Table 5 Criteria Weighting

Criteria	Description	Weight	Percentage
Parks and Protected Areas	**Queensland Protected Area Estates, Nature Refuges, Marine Zoning, Marine Parks**	**0.13**	**13.19%**
Wetlands	**RAMSAR, WPA/WMA Trigger Areas**	**0.13**	**13.19%**
Vegetation	**Regional Ecosystems and High Value Regrowth**	**0.12**	**12.09%**
Sensitive Habitat	**Essential Habitat, Dugong Protection Area, Fish Habitat**	**0.09**	**8.79%**
Slope	**Interpolated from 10m contours**	**0.09**	**8.79%**

Criteria	Description	Weight	Percentage
Waterways	**Stream Order, Reservoirs, Lakes**	**0.09**	**8.79%**
Zoning	**QLUMP (Queensland Land Use Planning Mapping Project)**	**0.08**	**7.69%**
Lot Size/Tenure	**DCDB**	**0.07**	**6.59%**
Bathymetry	**Bathymetric data (50m resolution)**	**0.07**	**6.59%**
Heritage	**Heritage Register and World Heritage Areas**	**0.07**	**6.59%**
Site Accessibility	**State Controlled Roads, Topographic Road Network**	**0.04**	**4.40%**
Access to Services	**Utility pipelines and powerlines**	**0.01**	**1.10%**
Land Claim	**Native Title Claims**	**0.01**	**1.10%**
Potential Acid Sulfate Soils	**Potential Acid Sulfate Soils (CSIRO)**	**0.01**	**1.10%**

4. Site Codification

In order to facilitate the process of visually assessing and prioritising the sites a 250 metre buffer was constructed around the existent and proposed site locations and the sites were codified based on the summation of the suitability surface values contained within that buffer. This section provides a brief overview of the processes involved in assigning the prioritisation code to the proposed and existent site locations.

The process of preparing for the interactive visual site assessment involved the following:

- Converting raster data to vector data based on "suitability" code.
- Developing a 250 metre buffer around existing and proposed site locations.
- Clipping the "suitability surface" to individual site buffers.
- Performing a summary statistic on the data contained within the buffer.
- Spatially joining the results to the 250m buffers and site locations.
- Exporting results to a table.

Following the site codification process a visual site assessment was performed in an interactive digital mapping environment where other non-spatial factors were incorporated into the analysis.

5. Summary

To assess the suitability of the study area GHD adopted a methodology, which combines multi-criteria analysis with desktop-based Geographic Information System (GIS) technology. This process allowed the consideration of a variety of environmental, physical, social and built environment criteria while supporting a range of inputs from project stakeholders.

The GHD project team and project stakeholders provide a balanced representation of disciplines in the criteria selection, rating and weighting. Documentation of the process provides a traceable and repeatable process.

The MCA methodology has provided for the generation of a site suitability surface, which was used to assess the suitability of the proposed locations for boating facility development in the state of Queensland. Each site was assigned a priority score based on the summation of the suitability surface values within a 250m radius of a proposed site location. Following the codification of the site locations the planning team assessed the sites in the context of aerial imagery and in relation to the non-spatial factors that were identified during the course of the demand study.

This methodology is based on a high-level assessment and provides the basis for identifying a suitable area in which to undertake a detailed investigation. These subsequent field-based investigations account for criteria not previously considered in this analysis or strongly represented in the model. These influences can alter the location of the site from that identified in this analysis.

Appendix A

Geospatial Data Register

Table 6 Project Data Geospatial Register

Category	Description	Custodian	Used in Suitability Model
Infrastructure	Topographic Road Network	Geosciences Australia (GA)	Yes
	State Controlled Road	Department of Main Roads (DMR)	Yes
	Restricted Areas	Geosciences Australia (GA)	Yes
	DCDB - Lot Size	Department of Environment and Resource Management (DERM)	Yes
	Utilties (Pipeline - Water) (Powerlines)	Geosciences Australia (GA)	Yes
Category	**Description**	**Custodian**	**Used in Suitability Model**
Physical	Watercourses Waterbodies	Department of Environment and Resource Management (DERM)	Yes
	Acid Sulfate Soils	CSIRO	Yes
	Bathymetry	Geosciences Australia (GA)	Yes
	Contours	Dept. of Natural Resources and Water	No
Category	**Description**	**Custodian**	**Used in Suitability Model**
Social	Native Title	Department of Environment and Resource Management (DERM)	Yes
	Heritage Register and World Heritage	Department of Environment and Resource Management (DERM)	Yes
	Marine Zoning	Department of Environment and Resource Management (DERM)	Yes

Category	Description	Custodian	Used in Suitability Model
	Land Use Planning	Department of Environment and Resource Management (DERM)	No
	DCDB Tenure	Department of Environment and Resource Management (DERM)	No
Category	**Description**	**Custodian**	**Used in Suitability Model**
Environment	Remnant Vegetation & Certified Amendments/High Value Regrowth	Department of Environment and Resource Management (DERM)	Yes
	Essential Habitat,	Department of Environment and Resource Management (DERM)	Yes
	Wetlands	Department of Environment and Resource Management (DERM)	No
	Protected Areas of Queensland Estate	Department of Environment and Resource Management (DERM)	Yes
	Dugong Protection Area, Fish Habitat	Department of Primary Industries and Fisheries	Yes

Appendix B

Map Disclaimers

Table 7 Dataset Disclaimer and Copyright Statement

Dataset / Source	Disclaimer Statement	Copyright Statement
Department of Environment and Resource Management Regional Ecosystems v6 (06/11/2009)	Map disclaimer: Regional ecosystem mapping, Version 6.0 Date: 06/11/09. Regional ecosystem line work reproduced at scale greater than 1:100,000, except in designated areas, should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100,000 is 100 metres. Regional ecosystem mapping reproduced with permission of Environmental Protection Agency 2009. While every care is taken to ensure the accuracy of the Information Product, the Environmental Protection Agency makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason. Data must not be used for direct marketing or be used in breach of the privacy laws.	© The State of Queensland. Department of Environment and Resource Management 2010.
Department of Environment and Resource Management Essential Habitat V3.02006. Protected Areas Estate 20 October 2009, High Value Regrowth, (06112009) Protected Areas of Queensland 2010 Great Barrier Reef State Marine Park, Zoning 2003, Moreton Bay, Marine Park Queensland Wetlands Data V2.0 2009, Directory of Important Wetlands 2007, RAMSAR 2009, Wetlands HYD, Wetlands WPA Buffer, WPA Trigger, Wetlands WMA Buffer, WMA Trigger. Stream Order (2009) Contours (2009)	While every care is taken to ensure the accuracy of this product, the Environmental Protection Agency makes no representations or warranties about accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.	© The State of Queensland. Department of Environment and Resource Management 2010.
Geoscience Australia Place Names Reserves 2006 Watercourses, Lakes, Reservoirs 2006 Utilities (Powerlines/Electricity) 2007 Heritage Bathymetry 2009 Topographic Roads 2007 Prohibited Areas 2006	The Commonwealth gives no warranty regarding the Data's accuracy, completeness, currency or suitability for any particular purpose.	© Commonwealth of Australia (Geoscience Australia) 2010.

CSIRO Land & Water Atlas of Australian Acid Sulfate Soils	The Commonwealth gives no warranty regarding the Data's accuracy, completeness, currency or suitability for any particular purpose.	© Commonwealth of Australia (CSIRO) 2006.
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