Recreational Boating Facilities Demand Forecasting Study

Southern Region

GHD CLIENTS| PEOPLE| PERFORMANCE

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.
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
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, picnic areas etc.
LGA	Local Government Area
MBRP	Maranoa–Balonne Regional Plan 2009-2031

Term/Abbreviation	Definition
MSQ	Maritime Safety Queensland
Nm	Nautical miles
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
SKM	Sinclair Knight Merz
SWRP	South West Regional Plan 2009
TMR	Transport and Main Roads
Trailerable boat	A boat that can be transported by a trailer.
VMR	Volunteer Marine Rescue
WBBRP	Wide Bay Burnett Regional Plan
Wet Berthing	To store 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 now, and for a seven plus year timeframe.

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

Regional Overview

The Southern Region extends from boundaries of Blackall-Tambo and Banana Shires in the north to the New South Wales border in the South. The region is bound by the Northern Territory border to the west and the boundary of South East Queensland to the east.

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

- The Southern Region is expected to experience significant growth in the future, particularly in the Bundaberg and Fraser Coast areas. As a result of high population growth, Bundaberg and Fraser Coast will be key contributors towards the growth of the tourism and recreation industry for the region.
- Population growth in the South West region has been either stagnating or declining.
- There are significant environmental management and constraints on the location of boating facilities and associated infrastructure under the CMPs.
- Future coastal growth areas such as Hervey Bay and other coastal locations will need to be considered when determining catchment areas for future recreational boating facility requirements.
- Burrum Heads in the Fraser Coast area is a key location experiencing considerable growth in recent years. Significant development has placed increased pressure on

[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.

recreational boating facilities, with the accessibility of current boat ramps difficult during high tide and a lack of facilities to cater for the demand (DTMR, 2009).

Recreational boating catchments

For the purposes of this study, sixteen recreational boating catchments (RBCs) have been defined in conjunction with TMR, using former local government area (LGA) boundaries and taking into consideration the five TMR regions in Queensland[2].

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 RBCs located within the Southern Region are:

- North Wide Bay
- South Wide Bay
- South Central
- South West Queensland
- Darling Downs.

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, 136 surveys were from residents of the Southern Region representing 20 percent of the total sample.
Workshops	Stakeholder workshops were conducted as round

[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.

Consultation Method	Participation
	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 Southern Region and approximately 29 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.

The biggest issues in the Southern Region relate to safety, parking, capacity and regulatory control. Most of the concerns raised by stakeholders focused on boat ramps located in Burrum Heads, identifying that both boat ramps at Burrum Heads are subject to cross currents and have severe and dangerous drop-offs at the end of the boat ramp. Stakeholders have described the situation in Burrum Heads as critical and immediate attention is required.

In order to resolve the issues at Burrum Heads, Fraser Coast Regional Council and TMR have been looking at candidate sites for a new boat ramp facility. Stakeholders expressed concerns that regulatory matters and a lack of coordination between government departments affected the approval process.

The capacity of the boat ramps in the Southern Region was raised as a key issue. The Fraser Coast and Wide Bay areas are currently tourist hotspots and are expected to experience significant growth in population and tourism over the next 20 years. Stakeholders are concerned that the existing facilities do not have the capacity absorb demands generated by future population and tourism growth. The capacity of the existing facilities is beginning to have an adverse affect on the Region.

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

Survey respondents feedback – existing recreational boating facilities

Catchment	Most liked boat ramp	Most disliked boat ramp	Most used boat ramp
Darling Downs	◗ Leslie Dam boat ramp (Southern Downs Regional Council)	◗ Leslie Dam boat ramp (Southern Downs Regional Council)	◗ Leslie Dam boat ramp (Southern Downs Regional Council)
North Wide Bay	◗ Urangan Boat Harbour boat	◗ Burrum Heads Road boat ramp	◗ Burrum Heads Road boat ramp

Catchment	Most liked boat ramp	Most disliked boat ramp	Most used boat ramp
	ramp (nearest slipway) ◗ Burrum Heads Road boat ramp ◗ Ross Street Boat ramp (Fraser Coast Regional Council)	◗ Ross Street Boat ramp (Fraser Coast Regional Council)	◗ Ross Street boat ramp (Fraser Coast Regional Council)
South Wide Bay	◗ Urangan Boat Harbour boat ramp (nearest slipway) ◗ Beaver Rock boat ramp, Mary River (Fraser Coast Regional Council)	◗ Beaver Rock boat ramp, Mary River ◗ Burrum Heads Road boat ramp ◗ Ross Street boat ramp (Fraser Coast Regional Council)	◗ Urangan Boat Harbour boat ramp (nearest slipway) ◗ Beaver Rock boat ramp, Mary River (Fraser Coast Regional Council)
South Central	No responses recorded		
South West Qld	No responses recorded		

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.

Total boat registrations in the Southern Region are projected to increase by 10,870 by 2031, with the largest increase in boat registration occurring in the South Wide Bay RBC (refer to the following table).

Projected boat registrations – base case scenario 2010-2031

RBC	2010	2011	2016	2021	2026	2031
Total boats						
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
Total	**33,208**	**33,627**	**36,281**	**38,827**	**41,417**	**44,078**

Source: Economic Associates estimates

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.

As shown in the following table, for the base case scenario between 2010 and 2031, the largest increase in boats requiring a boat ramp is projected to occur in the South Wide Bay RBC.

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

RBC	2010	2011	2016	2021	2026	2031	Change
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
Total	**33,472**	**33,869**	**36,375**	**38,809**	**41,260**	**43,802**	**10,309**

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 Southern Region.

In estimating average demand on a weekend in Table 17 (section 5.7), 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 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.

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 number of lanes	2010	2011	2016	2021	2026	2031
Average demand scenario							
South Wide Bay	52	48	49	53	57	61	65
North Wide Bay	42	27	28	30	33	35	37
Darling Downs	15	24	24	26	28	30	32
South Central	11	7	7	7	8	8	8
South West QLD	3	1	1	1	1	1	1
Total	**123**	**107**	**109**	**117**	**127**	**135**	**143**

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

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 lane demand incorporating tide accessibility and pontoons and floating walkways is outlined in the table below.

Demand incorporating tide accessibility and pontoons/floating walkways

RBC	Total lanes	2010	2011	2016	2021	2026	2031
High demand scenario							
South Wide Bay	51	48	49	53	57	61	65
North Wide Bay	41.5	27	28	30	33	35	37
Darling Downs	14	24	24	26	28	30	32
South Central	11.5	7	7	7	8	8	8
South West QLD	3.5	1	1	1	1	1	1
Total	**121.5**	**107**	**109**	**117**	**127**	**135**	**143**

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

RBC demand

The recreational boating facilities demand assessment undertaken for the Central Region has been on 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.

There is currently no high demand RBCs located within the Southern Region. However, if there is no provision of additional facilities South Wide Bay will become a medium demand RBC by 2021. There is currently greatest demand within the Darling Downs RBC, with this remaining the highest demand RBC for the next 10 years (refer to following table).

The focus of the provision of recreational boating facilities for the Southern Region is on the Darling Downs, South Wide Bay and North Wide Bay RBCs.

RBC demand categorisation – 40 boats/lane/day

RBC	Existing lanes	2010	Lane demand*	2016	Lane demand*	2021	Lane demand*
South Wide Bay	51	48	-3	53	2	57	6
North Wide Bay	41.5	27	-14	30	-11	33	-8
Darling Downs	14	24	10	26	12	28	14
South Central	11.5	7	-4	7	-4	8	-3
South West QLD	3.5	1	-2	1	-2	1	-2
Total	**121.5**	**107**	**-13**	**117**	**-3**	**127**	**7**

Identification of Priorities

To assist in the process of identification of priorities for the provision of recreational boating facilities in the Southern 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 Southern Region are summarised in the following table.

* Rounded down to nearest whole number.

Southern Region priorities

Priority	Recommendations	RBC
Priority 1	Boat ramp Burrum Heads – new facility	South Wide Bay
	Boat ramp Snapper Creek - upgrade existing facility	South Wide Bay
	Boat ramp Beaver Rock - upgrade existing facility	South Wide Bay
	Boat ramp Carlo Point - upgrade existing facility	South Wide Bay
	Boat ramp Fairymead – new facility	North Wide Bay
Priority 2	Boat ramp Mingo Crossing Burnett River - upgrade existing facility	North Wide Bay
	Boat ramp Walkers Point Manley Smith Drive - upgrade existing facility	North Wide Bay
	Boat ramp Toogoom - upgrade existing facility	South Wide Bay
	Boat ramp Burnett Heads - upgrade existing facility	North Wide Bay
	Boat ramp Four Knots Point Strathdees Road - upgrade existing facility	North Wide Bay
Priority 3	Boat ramp Toolara Toolara Road - upgrade existing facility	South Wide Bay
	Boat ramp Claude Wharton Weir Gayndah - upgrade existing facility	North Wide Bay
	Boat ramp Littabella Creek - new facility	North Wide Bay
	Boat ramp Gatakers Landing - upgrade existing facility	South Wide Bay
	Boat ramp Miara, Yandaran-Miara Road - upgrade existing facility	North Wide Bay
Priority 4	Boat ramp Winfield Road Baffle Creek – upgrade existing facility	North Wide Bay
	Boat ramp Condamine River Caliguel Lagoons – upgrade existing facility	Darling Downs
	Boat ramp Chinchilla Weir wall – upgrade existing facility	Darling Downs
	Boat ramp Dirranbandi – upgrade existing facility	South Central
	Boat ramp Ward River – upgrade existing facility	South Central

Demand following facility construction

The priority recommendations will assist in catering for the projected lane demand for the Southern Region. The construction of additional lanes and/or pontoons/floating walkways will increase the capacity of boat ramp 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.

RBC demand categorisation – 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*
South Wide Bay	52.5	48	-4	62.5	53	-9	63.5	57	-6
North Wide Bay	43.5	27	-16	52.5	30	-22	57	33	-24
Darling Downs	14	24	10	14	26	12	14	28	14
South Central	11.5	7	-4	13	7	-6	13	8	-5
South West QLD	3.5	1	-2	4	1	-3	4	1	-3
Total	**125**	**107**	**-16**	**146**	**117**	**-28**	**151.5**	**127**	**-24**

* 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 Southern 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 Southern 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 Southern 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 Regional context

The Southern Region extends from boundaries of Blackall-Tambo and Banana Shires in the north to the New South Wales border in the South. The region is bound by the Northern Territory border to the west and the boundary of South East Queensland to the east (Figure 1).

2.2 Regional planning

The Southern Region comprises a number of smaller areas established for the purposes of planning, development and coastal development. Development, planning and population growth in the Southern Region is managed through the following regional plans:

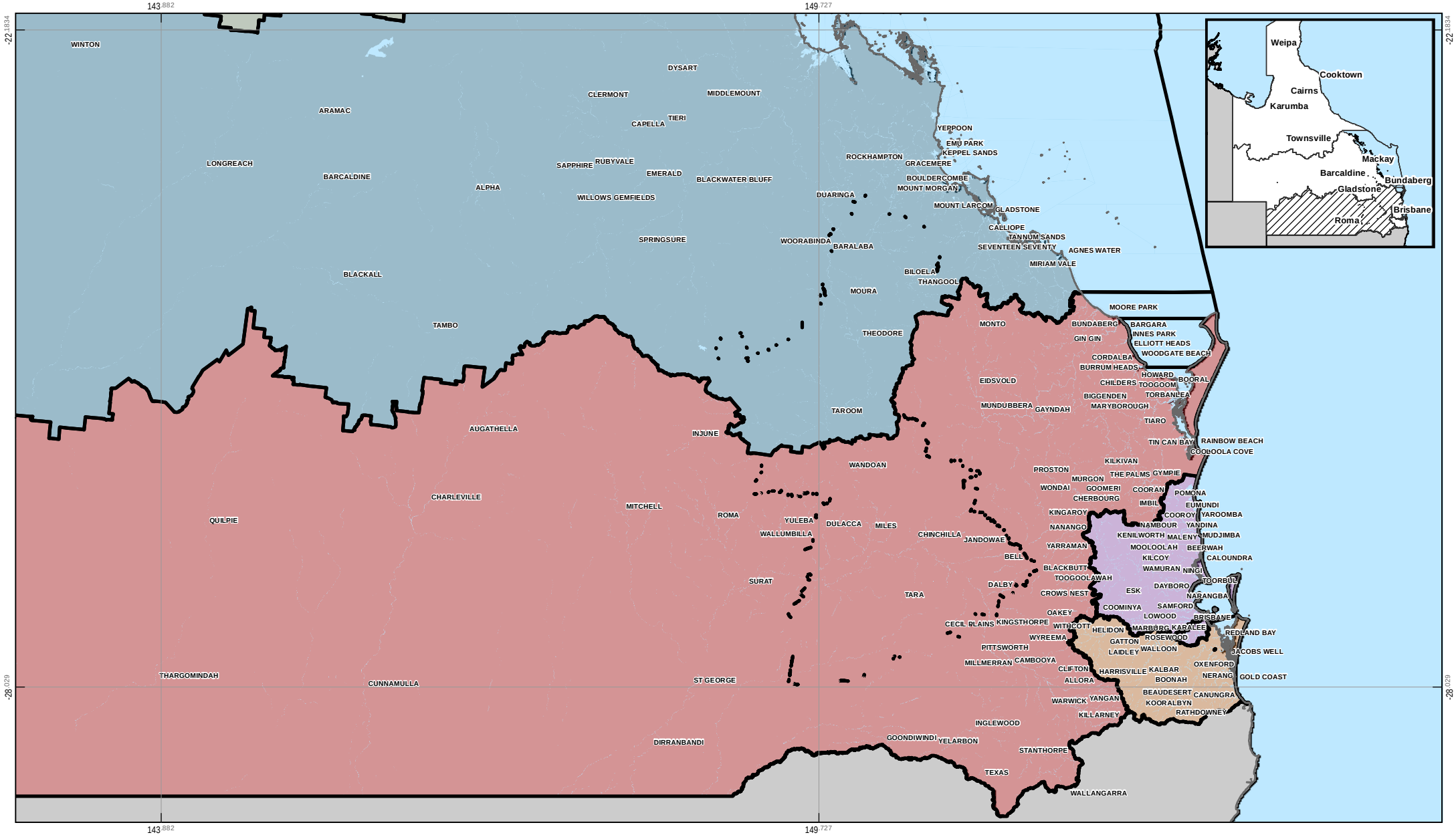
- Draft Wide Bay Burnett Regional Plan 2011 (WBBRP) – the draft WBBRP has been established to provide a framework for managing growth and sustainability of the Wide Bay Burnett Region to the year 2031 (DLGP, 2011). The Wide Bay Burnett (WBB) region comprises of Bundaberg Regional Council, Cherbourg Aboriginal Shire Council, Fraser Coast Regional Council, Gympie Regional Council, North Burnett Regional Council and South Burnett Regional Council.
- Maranoa–Balonne Regional Plan 2009-2031 (MBRP) – this plan has been established to provide a framework of policies that will ensure economic, social and environmental goals of the region are reached between 2009 and 2031 (DIP, 2009a). The region comprises the local governments of Maranoa Regional Council and Balonne Shire Council.
- South West Regional Plan 2009 (SWRP) – this plan applies to the LGAs of Bulloo, Murweh, Paroo and Quilpie Shire Councils to respond to the specific needs of the community over the next 20 years (DIP, 2009b).

In addition, the Draft Wide Bay Coast Regional Coastal Management Plan (Draft Wide Bay Coast Regional CMP) has been prepared for this area. The draft Wide Bay Coast Regional CMP seeks to identify, protect and manage coastal resources through the policy framework established by the State Coastal Plan.

The draft Wide Bay Coast Regional CMP was not available for review as part of this paper. However, relevant information pertaining to the Wide Bay Coast region identified within the State Coastal Plan has been included.

2.3 Population and demographics

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



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Horizontal Datum: Geocentric Datum of Australia 1994

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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 29 AUG 2011

Overview Region Map
Southern

Figure 1

G:\41\22459\GIS\Maps\MXD\Regional Overview Maps\41_22459_01_Overview_Southern.mxd

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 Southern Region population

The estimated resident population of Southern Region was 514,386 in 2007, which was approximately 12.3% of the Queensland population. Population projections indicate that the population of the Southern Region is expected to increase to approximately 686,722 by 2026 (OESR, 2009).

2.3.2 Sub-regional population

Wide Bay Burnett

Over the past 20 years, the Wide Bay Burnett (WBB) region has experienced significant population growth, with approximately 85,000 people moving to the region and settling primarily in coastal areas. The region's population was 287,425 in 2009, with over two-thirds being in the regional council areas of Bundaberg and the Fraser Coast (DLGP, 2011). The population growth of the area is expected to continue with a forecast of approximately 146,500 additional people in the period to 2031 (DLGP, 2011).

More than 80% of this population is located in the five major centres of Bundaberg, Maryborough, Hervey Bay, Gympie and Kingaroy. The coastal zone of the region possesses high socio-economic value through activities such as resource exploitation, industry and commerce, infrastructure development, tourism, recreation and nature conservation.

Maranoa–Balonne

In 2007, the estimated resident population of Maranoa–Balonne was 17,985 and the population is expected to increase to approximately 19,842 in 2031 (DIP, 2009a).

South West

The South West region is sparsely populated with a current total regional population of 8,176 (DIP, 2009b). The majority of the population currently reside in Charleville and Cunnamulla.

Medium series population projections indicate that the South West's population is expected to experience a slow decline over the next two decades, although this decline is expected to be at a slow rate of -0.1% per annum (DIP, 2009b).

2.4 Development and land use

With population growth expected to continue in the Southern Region, particularly in the coastal areas, development and land use must be sustainably managed to support economic, social and urban development. The following sections provide an overview of development patterns and land use currently occurring and planned for this region.

2.4.1 Wide Bay Burnett

The Wide Bay Burnett region's significant natural resource assets underpin economic development and growth in population and employment as well as contributing significantly to the tourism industry and recreational pursuits.

The State Coastal Plan (2006) identifies that environmentally significant land and coastal waters comprise a large portion of the Wide Bay Coast region. This includes the Fraser Island and Great Barrier Reef World Heritage Areas, internationally recognised for their wide range of natural and cultural heritage values (EPA, 2006).

The WBBRP recognises that coastal and river access across the region presents opportunities for marine industry and aquaculture projects. However, careful planning and development will be required to ensure environmental impacts are minimised (DLGP, 2011).

A major nature-based tourism industry exists in the Fraser Coast region, with specific emphasis on Fraser Island, whale/ dolphin watching, marine turtle nesting and recreational boating and fishing activities (EPA, 2006).

Tourism is a significant driver for growth throughout the region and its now expanding throughout the whole of the region, particularly activities such as caravan and camping and inland impoundment recreational fishing. The WBBRP aims to identify and promote natural economic assets to maximise sustainable tourism and recreation opportunities, ensuring activities do not adversely impact on the values of the area (DLGP, 2011).

2.4.2 Maranoa-Balonne

The population of the Maranoa-Balonne region is expected to increase with the support of key industries in the area including agriculture, timber production, energy and natural resources and tourism. The economy of Maranoa–Balonne has traditionally been supported by agricultural activities. However, developments such as coal seam gas are of greatest significance to Maranoa–Balonne, with extensive fields located in the region (DIP, 2009a).

Tourism is increasingly important to Maranoa–Balonne, yet it remains a poorly understood sector of the region’s economy (DIP, 2009a). However, opportunity exists for the region to develop and promote tourism industry through active recreation activities such as bushwalking, horse riding, cycling, four-wheel driving, motorcycling, canoeing, bird watching, fishing and touring (DIP, 2009a).

2.4.3 South West Region

Economic activities in the South West consist of oil, gas and gemstone (opal) extraction, beef, sheep and game meat processing, and some cropping, with tourism contributing to the economy in the region, particularly during cooler times of the year (DIP, 2009b).

The South West region has experienced an increase in tourism in recent years through attractions and experiences such as natural landscapes, national parks and

educational tourism. However, the regional plan does not identify recreational water based activities as a contributor to the tourism industry or recreation in the region.

2.5 Regional overview

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

- The Southern Region is expected to experience significant growth in the future, particularly in the Bundaberg and Fraser Coast areas. As a result of high population growth, Bundaberg and Fraser Coast will be key contributors towards the growth of the tourism and recreation industry for the region.
- Population growth in the South West region has been either stagnating or declining.
- There are significant environmental management and constraints on the location of boating facilities and associated infrastructure under the CMPs.
- Future coastal growth areas such as Hervey Bay and other coastal locations will need to be considered when determining catchment areas for future recreational boating facility requirements.
- Burrum Heads in the Fraser Coast area is a key location experiencing considerable growth in recent years. Significant development has placed increased pressure on recreational boating facilities, with the accessibility of current boat ramps difficult during high tide and a lack of facilities to cater for the demand (DTMR, 2009).

3. Recreational boating facilities

3.1 Introduction

The current recreational boating facilities of the Southern Region incorporate both TMR facilities, and facilities that are owned and managed by other organisations such as local governments. This section identifies the current known 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 Southern 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 1 details the existing TMR recreation boating facilities located within the Southern Region by LGA, while Table 2 detailed facilities owned by other entities, such as local government.

Table 1 TMR owned recreational boating infrastructure[3]

Local government	Facilities					
	Boat ramps	Boat ramp lanes	Pontoon	Floating walkway	State boat harbour	Jetty
Balonne Shire Council	1	1*	-	-	-	-
Bundaberg Regional Council	18	27	-	1	1	-
Fraser Coast Regional Council	18	31	2	-	1	-
Gympie Regional Council	2	9	1	-	-	-
Murweh Shire Council	1	1	-	-	-	-
North Burnett Regional Council	5	6	-	-	-	-
Paroo Shire Council	1	2	1	-	-	-
Roma Regional Council	1	1	1	-	-	-

[3] 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.

* Minimum number of lanes. Exact number is unknown as data was unavailable.

Local government	Facilities					
	Boat ramps	Boat ramp lanes	Pontoon	Floating walkway	State boat harbour	Jetty
Southern Downs Regional Council	1	1	-	-	-	-
Western Downs Regional Council	2	2	-	-	-	-
TOTAL	50	81	5	1	2	0

Table 2 Other recreational boating infrastructure[4]

Local government	Facilities					
	Boat ramps	Boat ramp lanes	Pontoon	Floating walkway	Boat harbour	Jetty
Balonne Shire Council	4	4	-	-	-	-
Bundaberg Regional Council	3	3	-	-	-	-
Fraser Coast Regional Council	6	8	-	-	-	1
Goondiwindi Regional Council	2	4	-	-	-	-
Gympie Regional Council	1	1	-	-	-	-
North Burnett Regional Council	6	6	-	-	-	-
Paroo Shire Council	1	1	-	-	-	-
South Burnett Regional Council	3	3	-	-	-	-
Southern Downs Regional Council	1	3				
Toowoomba Regional Council	4	7	-	-	-	-
Western Downs Regional Council	1	2	-	-	-	-
TOTAL	32	42	0	0	0	1

[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.

3.3 Southern Region recreational boating

As identified in section 2.3, tourism is a significant driver for growth throughout the Wide Bay – Burnett region. Recreational boating activities have not been identified as a priority in the WBBRP. However, recreational boating and associated infrastructure contribute to the tourism and recreation opportunities in the Wide Bay Coast region.

The State Coastal Plan identifies a number of important coastal management issues affecting the Wide Bay Coast region, including:

- loss of natural habitats and cultural sites due to urban and rural expansion;
- adverse impact of urban development on the amenity of natural coastal landscapes and on beach protection zones;
- beach erosion due to natural events and built structures; and
- impact of marine infrastructure such as marinas and dredging (EPA, 2006).

In the Maranoa-Balonne region, there is potential to improve the tourism industry through the establishment of recreation facilities. Beardmore Dam, located north of the town of St George, provides the community with an area to participate in recreation activities with picnic areas, shelters, playgrounds, toilets and a boat ramp (Sunwater, 2010). With approximately 745 boats registered in the region, there is opportunity to develop and promote recreational boating and fishing activities on Beardmore Dam and other water supplies such as Neil Turner Weir (DIP, 2009a) in the region as a means of supporting the tourism industry.

The South West is known for its vast natural landscapes, rivers and wetlands and diverse vegetation communities (DIP, 2009b). However, water based recreation activities do not contribute significantly to the tourism industry or recreational activities in the region. Recreational boating activities in the region are also dependent on the seasonal weather patterns. For example, after flooding events, waterways that were previously dry may become more accessible.

There are currently only two boat ramps supporting boating activities in the South West region. The Charleville boat ramp, which is located on the Ward River south west of Charleville town centre and; the Warrego River boat ramp located in Cunnamulla. Therefore, opportunity exists for more recreational boating facilities to be established on the watercourses in the region (where possible) to promote recreational activities in a natural landscape and support the development of the tourism industry.

3.4 Boating Infrastructure Capital and Maintenance Program

Within the Southern Region, a number of recreational boating facilities have been established or upgraded as part of Queensland Transport's *Boating Infrastructure Capital and Maintenance Program* (BICM Program) between December 2008 and December 2010 (TMR, 2010). The recent projects are:

- reconstruction of a 4 lane boat ramp at Queen Street, Bundaberg;
- new 2 lane boat ramp at Gatakers Landing, Hervey Bay;
- single lane boat ramp at Burnett Downs, Rustic Road;

- new pontoon at Burnett Heads Boat Harbour;
- new pontoon at Surat (Balonne River);
- new pontoon at Maaroom;
- Tuan – reconstruction;
- new boat ramp at Kalkie (Bundaberg);
- widening of Burrum Heads boat ramp; and
- widening of Old Powerhouse Road boat ramp (Howard) from one to two lanes.

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

- widening of St George Bowen Street boat ramp from one to two lanes;
- new pontoon at St George boat ramp;
- upgrading of Riverview Peagam St Bundaberg boat ramp;
- new pontoon/floating walkway at Queen Street Bundaberg boat ramp;
- new two lane boat ramp at Branyan Sandy Hook Park (Burnett River);
- extension and repairs to Walkers Point Manley Smith Drive boat ramp via Woodgate;
- new pontoon/floating walkway at Buxton Powers Street boat ramp;
- reconstruction of Winfield Rocky Point Road boat ramp;
- extension of pontoon at Urangan Boat Harbour Buccaneer Road boat ramp;
- new pontoon/floating walkway at Tuan Bottle Brush Road boat ramp;
- new pontoon/floating walkway at Maryborough South Street boat ramp; and
- new pontoon at Cunnamulla.

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 136 surveys were received from residents in the Southern 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.

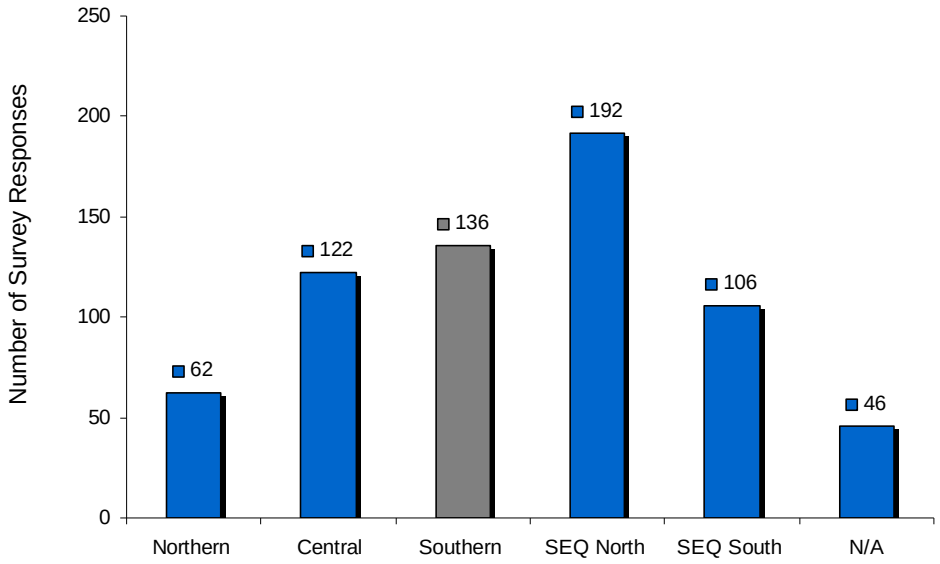
4.3 Community survey results

4.3.1 Sample characteristics

Survey response

As shown in Figure 2, 136 surveys were received from residents in the Southern Region, representing 20.5% of the total survey responses.

Figure 2 Survey representation



Place of residence

The geographic spread of survey respondents in the Southern Region is shown in Table 3. The greatest number of responses came from residents of Bundaberg Regional Council, followed by Fraser Coast Regional Council.

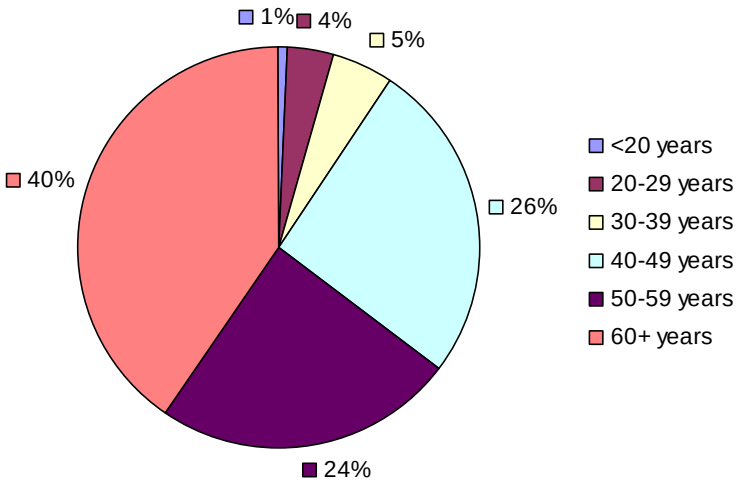
Table 3 Survey response by LGA

Local government	Respondents	% of TMR region	% of Qld
Balonne Shire Council	1	0.7%	0.2%
Bundaberg Regional Council	75	55.1%	11.3%
Fraser Coast Regional Council	41	30.1%	6.2%
Goondiwindi Regional Council	10	7.4%	1.5%
Gympie Regional Council	5	3.7%	0.8%
Toowoomba Regional Council	3	2.2%	0.5%
Not Stated	1	0.7%	0.2%
Total	**136**	**100.0%**	**20.5%**

Age of respondents

A majority of survey respondents from the Southern Region were aged over 60 years (40%), followed by 50-59 year olds (24%) (Figure 3). Only 5% of the respondents were less than 30 years of age.

Figure 3 Age of respondents

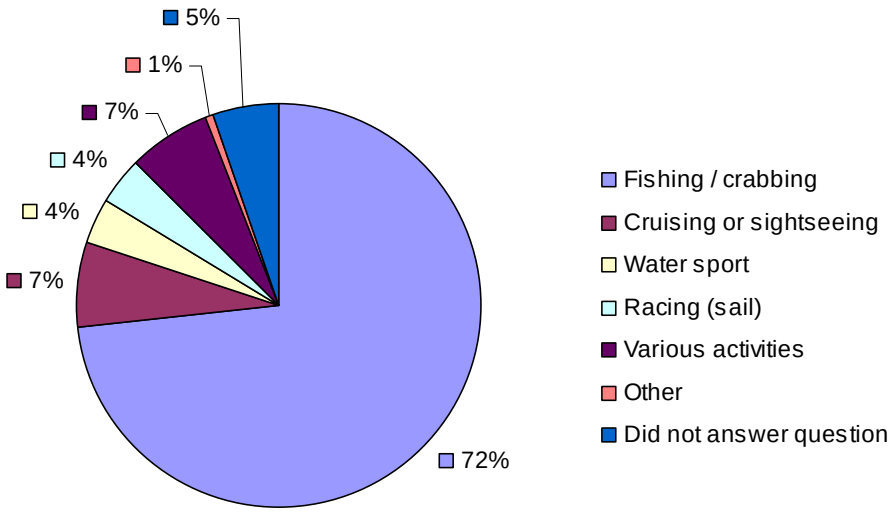


4.3.2 Recreational boating activity

Type of activity

As shown in Figure 4 the responses received from the Southern Region indicate that 'fishing / crabbing' is the most popular activity for a given vessel undertaken by the survey respondents, representing 72% of the recreational boating activity.

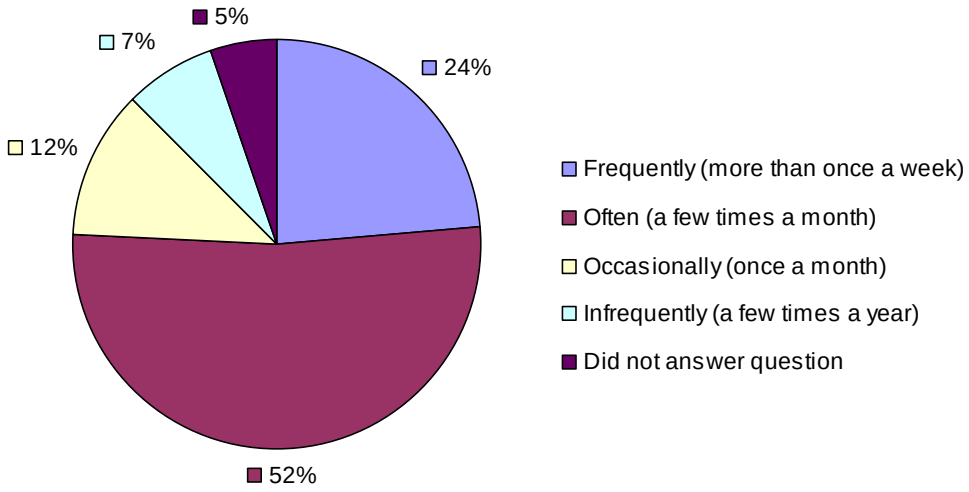
Figure 4 Most common activity for a given vessel



Activity frequency

Approximately 76% of respondents from the Southern 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).

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 4.

Table 4 Level of satisfaction with existing facilities

Three most common reasons for liking a facility		
Reason	**Frequency**	**Explanation**
Parking and congestion	Mentioned in 48 responses	Respondents rated parking facilities and lack of congestion very highly when considering a boat ramp they enjoy using. Many respondents identified that they enjoyed using a facility where parking spots are easy to secure.
Access (water)	Mentioned in 35 responses	The most common reason for 'liking' a facility was for the easy access it provides to the water. Most respondents specified they like boat ramps with pontoons to allow for easy and safe loading and unloading of passengers.
Structural	Mentioned in 24 responses	Respondents noted they like a facility because of its design features including boat ramp size, all weather access and design features.

Three most common reasons for disliking a facility		
Reason	**Frequency**	**Explanation**
Structural	Mentioned in 66 responses	Respondents 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.
Safety	Mentioned in 31 responses	Many respondents stated they refused to use some facilities because of safety hazards. Such hazards included deep drop-offs and other design flaws that make a boat ramp, by design, unsafe to use. Some concerns also referred to facilities that had been targeted by vandals.
Parking and congestion	Mentioned in 27 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.

Comments received in relation to particular facilities within the Southern Region are presented in Table 5.

4.4 Stakeholder workshops

4.4.1 Participation

Stakeholder workshops were held in four locations across the Southern Region. Table 6 below provides a summary of meeting locations, dates and attendance.

Table 5 Survey respondents' feedback - existing recreational boating facilities

Catchment	Most liked boat ramp	Comments	Most disliked boat ramp	Comments	Most used boat ramp	Comments
Darling Downs	**Boat ramp Leslie Dam (Southern Downs Regional Council)**	◗ good facility ◗ poor access during low water levels.	**Boat ramp Leslie Dam (Southern Downs Regional Council)**	lack of boat ramp access when water levels drop	**Boat ramp Leslie Dam (Southern Downs Regional Council)**	◗ gravel pad is too shallow to launch without damaging hull. ◗ boat ramp is 50-100 metres out of the water at low water levels. ◗ upgrading or new boat ramp needed .
North Wide Bay	**Boat ramp Urangan Boat Harbour nearest slipway (Fraser Coast Regional Council)**	◗ boat ramp has 4 lanes ◗ ample parking ◗ not affected by wind and wave action or currents.	**Boat ramp Burrum Heads Road and Boat ramp Burrum Heads Ross St (Fraser Coast Regional Council)**	◗ the boat ramps are subject to tidal runs ◗ adverse wind and wave action ◗ inadequate parking ◗ no landing or queuing areas at some stages of the tide ◗ no rigging areas ◗ no amenities ◗ boat ramps have a deep water drop-off ◗ concrete rails on the sides make launching and retrieving difficult .	**Boat ramp Burrum Heads Upstream Ross St (Fraser Coast Regional Council)**	◗ limited parking ◗ small turning area ◗ no amenities ◗ no rigging area.
	Boat ramp Burrum Heads Road and Boat ramp Burrum Heads Ross St (Fraser Coast Regional Council)	◗ easy access ◗ only boat ramps in Burrum Heads.			**Boat ramp Burrum Heads Road (Fraser Coast Regional Council)**	◗ turning area is insufficient making it difficult for manoeuvre during busy times ◗ parking facilities are barely adequate other than at light usage times.

Catchment	Most liked boat ramp	Comments	Most disliked boat ramp	Comments	Most used boat ramp	Comments
South Wide Bay	**Boat ramp Urangan Boat Harbour** **nearest slipway** **(Fraser Coast Regional Council)**	◗ plenty of lanes ◗ adequate parking ◗ good at all tides with all weather protection.	**Boat ramp Beaver Rock South Bank Mary River** **(Fraser Coast Regional Council)**	◗ very rocky either side of boat ramp ◗ exposed at low tides ◗ not enough parking for cars & trailers. Parking is available is often taken by cars (without trailers) ◗ "illegal' parking needs to be policed and more parking provided.	**Boat ramp Urangan Boat Harbour** **nearest slipway** **(Fraser Coast Regional Council)**	◗ excellent boat ramp ◗ pontoons some distance from boat ramp ◗ extension / additional pontoon is required.
	Boat ramp Beaver Rock **South Bank Mary River** **(Fraser Coast Regional Council)**	No comments provided.	**Boat ramp Burrum Heads Road and Boat ramp Burrum Heads Ross St** **(Fraser Coast Regional Council)**	◗ the boat ramps are subject to tidal runs ◗ adverse wind and wave action ◗ inadequate parking ◗ no landing or queuing areas at some stages of the tide ◗ no rigging areas ◗ no amenities ◗ boat ramps have a deep water drop-off ◗ concrete rails on the sides make launching and retrieving difficult.	**Boat ramp Beaver Rock** **South Bank Mary River** **(Fraser Coast Regional Council)**	◗ drop-off at end at low tide ◗ not steep enough ◗ inadequate parking ◗ facilities and infrastructure generally very poor.
South Central	No responses recorded.					
South West Qld	No responses recorded.					

Table 6 Stakeholder workshops

Meeting	Date	Venue	Invitees	Attendees	GHD & TMR attendees
Bundaberg – Combined	15/06/2010	TMR Customer Service Centre Bundaberg	11	5	3
Hervey Bay – Combined	16/06/2010	Hervey Bay RSL, Hervey Bay	15	6	3
Gympie – Combined	17/06/2010	Gympie Civic Centre, Gympie	6	Cancelled due to a lack of attendees	
Roma – Combined	16/06/2010	Club Hotel Motel, Roma	19	4	2
Total attendees			**51**	**15**	**8**

4.4.2 Key issues and hotspots

Burrum Heads

The biggest issues in the Southern Region relate to safety, parking, capacity and regulatory control. Most of the concerns raised by stakeholders focused on boat ramps located in Burrum Heads.

In particular, stakeholders identified problems at the Ross Street boat ramp and the Burrum Heads Road boat ramp, with many regarding these sites as the top priority for the Southern Region, describing the current situation as 'critical' and in need of immediate attention.

According to stakeholders, both boat ramps are subject to cross currents and have severe and dangerous drop-offs at the end of the boat ramp. Floating walkways and pontoons are not currently provided. As a result, people are forced to hold their boats in the water and risk being injured by the boat ramp or by their boats:

> *"The [Burrum Heads] boat ramps are not safe due to the cross currents, adverse winds and wave actions and the deep water drop-off at the end of the boat ramp". (Key Stakeholder, Hervey Bay)*

Ross Street boat ramp – single lane

Information sign at Burrum Heads Road boat ramp

Parking at Ross Street boat ramp

Parking for Burrum Heads Road boat ramp

In order to resolve the issues at Burrum Heads, Fraser Coast Regional Council and TMR have been looking at candidate sites for a new boat ramp facility. Stakeholders expressed concerns that regulatory matters and a lack of coordination between government departments affected the approval process.

"Council have land which is suitable for a new boat ramp but EPA doesn't want it happening". (Key Stakeholder, Hervey Bay)

"Need to get all departments to agree on something and that is the biggest problem. It is hopeless trying to get an outcome. Need to sort that problem out". (Key Stakeholder, Hervey Bay)

"It becomes frustrating to the people in Burrum Heads because they don't know what's happening behind closed doors. They see facilities being established elsewhere (e.g. Gatakers Bay) but nothing is happening in Burrum Heads". (Key Stakeholder, Hervey Bay)

Parking

In the Bundaberg Regional Council area, stakeholders identified the Queen Street boat ramp as being an ongoing issue in terms of availability of parking due to its location and popularity. The boat ramp is located in the Bundaberg CBD and as a result, increased traffic is being brought into the CBD which is causing congestion on the nearby bridge. Stakeholders identified that it is essential to improve facilities which are located outside the CBD to relieve congestion and take some pressure off the existing parking facilities.

The Fairymead Crossing was identified by as a potential site for a new boat ramp. It provides deep water access, and according to stakeholders, a boat ramp in this location would be relatively self-cleaning.

Queens Street boat ramp Car Park

Potential new site at Fairymead Crossing

Boat ramp capacity

The capacity of the boat ramps in the Southern Region was raised as a key issue.

The Fraser Coast and Wide Bay areas are currently tourist hotspots and are expected to experience significant growth in population and tourism over the next 20 years:

> *"People come to the area for boating and fishing – it's the Region's drawcard". (Key Stakeholder, Bundaberg)*

According to stakeholders, the number of boating and fishing club members is also increasing and as a result, the region is increasingly playing host to fishing competitions and sailing regattas:

> *"Once a year, fishing comps and sailing regattas get heaps of people which is increasing tourism and economic development". (Key Stakeholder, Hervey Bay)*

Stakeholders are concerned that the existing facilities do not have the capacity absorb demands generated by future population and tourism growth. The capacity of the existing facilities is beginning to have an adverse affect on the Region.

Woodgate

Stakeholders raised concerns about the safety, maintenance and long term viability of the boat ramp at Woodgate:

> *"The Woodgate boat ramp is ongoing upkeep for a dead horse. Further study needs to be done on this boat ramp to determine whether it is worth keeping." (Key Stakeholder, Bundaberg)*

Bowen Street boat ramp, St George

A lack of parking is the primary problem at this popular facility in St George. Safety is also an issue. Stakeholders commented that the site has capacity for expansion, and it would benefit from a pontoon similar to the new facility in Surat.

Marshall Street boat ramp, Goondiwindi

Stakeholders regarded the Marshall Street boat ramp in Goondiwindi as a priority for future funding. This boat ramp gets very congested at times and needs additional parking areas. Boat ramp access into the river is very steep, posing public safety risks. It was noted that some older users had fallen at the site as a result of existing conditions. Boat ramp widening is also desirable, together with a pontoon.

4.4.3 Stakeholder priorities

Stakeholders that participated in the Southern Region workshops identified the following key sites as priorities for future development and/ or upgrade (Table 7). Each of these sites have been assessed in greater detail as part of this project. The assessment process and regional priorities are detailed in section 7 of this report.

Table 7 Stakeholder priorities

Locality	New/ Upgrade	Summary
Ross Street, Burrum Heads	Upgrade boat ramp	◗ Upgrade boat ramp in response to public safety risks and usability during tide changes. ◗ The facility is subject to strong cross currents and has a severe drop-off at the end of the boat ramp. ◗ Expand area for parking to service boat ramp demand.
Burrum Road, Burrum Heads	Upgrade boat ramp	◗ Stakeholders at the Hervey Bay Combined Stakeholder Workshop identified an upgrade of the Ross Street boat ramp at Burrum Heads as a very high priority. ◗ Stakeholders stated that the boat ramp is very dangerous and unsafe during tide changes.
Fairymead, Bundaberg	New boat ramp	◗ Possible site for new boat ramp to provide river access (3-4 lane facility is desirable) with pontoon or floating walkway.
Marshall street Goondiwindi	Upgrade boat ramp	◗ Structural modification to boat ramp slope and width. ◗ Construct pontoon adjacent to boat ramp. ◗ Expand area for parking to service boat ramp demand.
Bowen Street St George	Upgrade boat ramp	◗ Construct new pontoon adjacent to existing boat ramp. ◗ Expand area for parking to service boat ramp demand.
River Heads	Land based facilities	◗ Construct pontoon/floating walkway. ◗ Expand area for parking to service boat ramp demand. ◗ Manage conflict between recreational boat users and passengers for the barge (separate parking area).

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

MSQ (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:

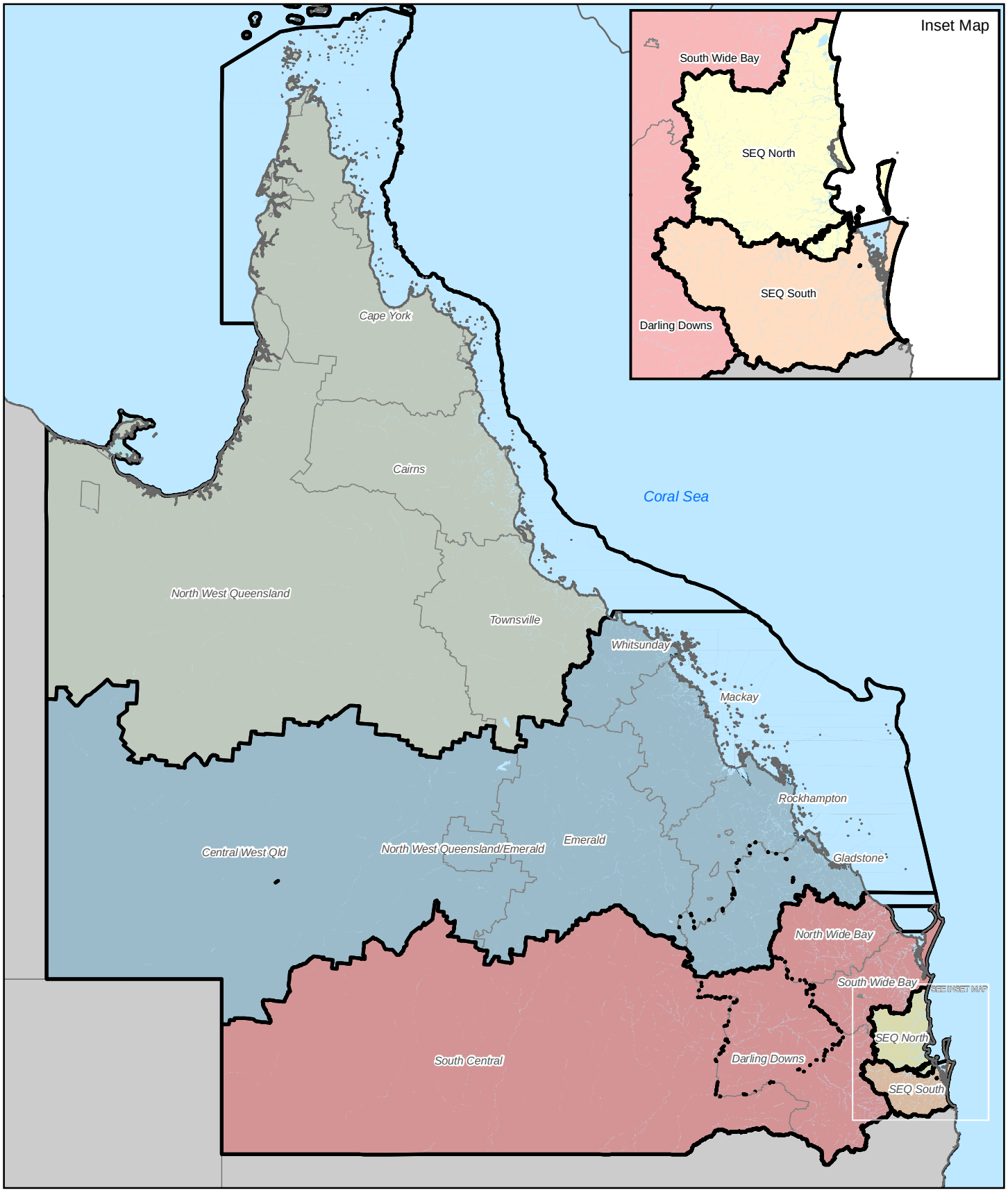
- road transport infrastructure to the facility;
- natural and man-made barriers;
- the location and scale of existing facilities in the area; and
- psychological barriers, such as driving time and perceptions of distance.

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.

The RBCs were defined in conjunction with TMR, using former LGA boundaries and taking into consideration the five TMR regions in Queensland[5].

For the purposes of this study, sixteen recreational boating catchments (RBCs) have been defined with the Southern Region comprised of five RBCs (Figure 6). The Southern Region RBCs and the local governments which they incorporate are identified in Table 8.

[5] It is recognised that boat owners may travel outside of their recreational boating catchment to access facilities. However, discussions with the 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 8 Southern Region RBCs

RBC	Local government
North Wide Bay	◗ Bundaberg Regional Council ◗ North Burnett Regional Council
South Wide Bay	◗ Fraser Coast Regional Council ◗ South Burnett Regional Council ◗ Gympie Regional Council
Darling Downs	◗ Western Downs Regional Council (former Dalby/Wambo) ◗ Goondiwindi Regional Council (former Inglewood) ◗ Southern Downs Regional Council ◗ Toowoomba Regional Council
South Central	◗ Balonne Shire Council ◗ Bulloo Shire Council ◗ Western Downs Regional Council (former Taroom) ◗ Goondiwindi Regional Council (former Wangambe/Goondiwindi) ◗ Murweh Shire Council ◗ Roma Regional Council
South West QLD	◗ Paroo Shire Council ◗ Quilpie Shire Council

5.3.1 Socio-economic profile of the Southern Region RBCs

A socio-economic profile of the Southern Region 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 registrations 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 Southern Region recorded an increase in the number of sail boats and motor boats registered (Table 9).

The rate of growth in total boat registrations was highest in the South West Queensland RBC. However, this is largely due to the small number of registrations within this RBC. North Wide Bay, South Wide Bay and South Central RBCs all experienced total boat registration growth over this five year period of greater than 20% (Table 9).

South Wide Bay RBC has the largest number of boat registrations within the Southern Region.

In all RBCs within the Southern Region, 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 9 Boat registrations by RBC – 2005-2009

RBC	2005	2006	2007	2008	2009	Growth
Boats with sail						
South Wide Bay	411	435	448	494	494	20.2%
North Wide Bay	149	170	209	225	228	53.0%
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	-
Total	**610**	**668**	**717**	**780**	**797**	-
Boats without sail						
South Wide Bay	11,606	12,166	12,881	13,524	13,940	20.1%
North Wide Bay	7,335	7,713	8,198	8,567	8,898	21.3%
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%
Total	**26,628**	**27,886**	**29,338**	**30,788**	**32,000**	-
Total boats						
South Wide Bay	12,017	12,601	13,329	14,018	14,434	20.1%
North Wide Bay	7,484	7,883	8,407	8,792	9,126	21.9%
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%
South West QLD	139	159	169	219	240	72.7%
Total	**27,238**	**28,554**	**30,055**	**31,568**	**32,797**	-

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 they 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 10.

Table 10 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 Southern Region, the rate of growth in the trailerable boat fleet was highest in South West QLD, however, this is again reflective of the small size of the fleet. North Wide Bay and South Central RBCs both experienced growth of greater than 20% (Table 11).

Table 11 Estimated size of trailerable boat fleet – 2005-2009

RBC	2005	2006	2007	2008	2009	Growth
Trailerable boat fleet						
South Wide Bay	11,296	11,817	12,471	13,071	13,460	19.2%
North Wide Bay	7,202	7,576	8,052	8,407	8,724	21.1%
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%
Total	**26,009**	**27,199**	**28,571**	**29,934**	**31,086**	-
Proportion of total boats						
South West QLD	98.1%	98.0%	97.3%	97.4%	96.6%	-
South Central	97.2%	97.1%	97.2%	97.1%	96.9%	-
Darling Downs	97.0%	96.6%	96.6%	96.4%	96.2%	-
South Wide Bay	94.0%	93.8%	93.6%	93.2%	93.3%	-
North Wide Bay	96.2%	96.1%	95.8%	95.6%	95.6%	-

Source: Economic Associates estimates

5.6 Trailerable boat fleet projections

5.6.1 Introduction

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 LGAs 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.

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 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 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.

5.6.3 Historical population and boat registration

Analysis of Southern Regions RBCs 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 catchments than inland catchments. On average, North Wide Bay (81.45 boat registrations per 1,000 persons); and South Wide Bay (78.35 boat registrations per 1,000 persons) have two of the highest incidences of boat ownership in Queensland (Table 12).

Overall, the incidence of boat ownership per 1,000 persons has increased in Queensland, with growth highest in South West QLD (incidence of boat ownership increased at an average annual rate of 15.6% per annum), however this RBC has a particularly low boat ownership rate, averaging 22.39 boat registrations per 1,000 persons between 2005 and 2009.

Figure 7 Methodology for preparing trailerable fleet projections

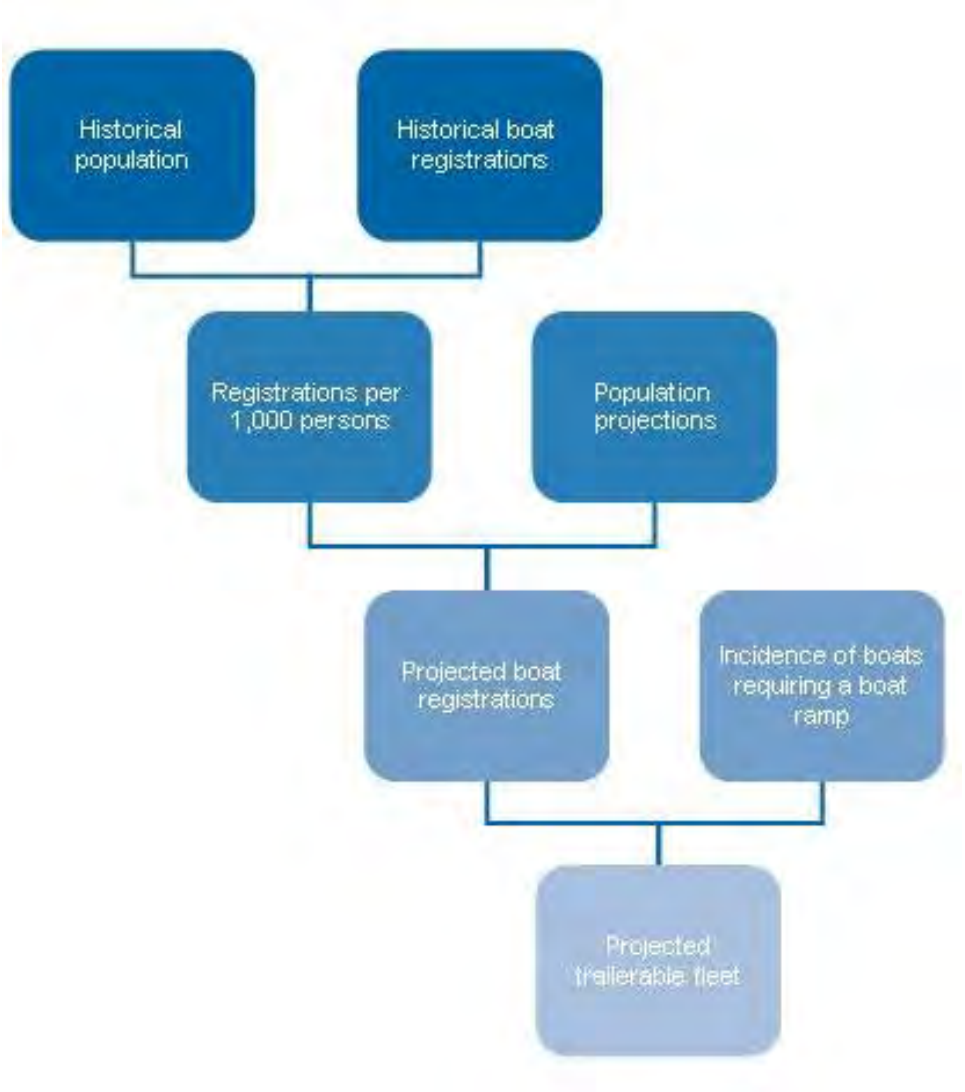


Table 12 Registrations per 1,000 persons - 2005-2009

RBC	2005	2006	2007	2008	2009	Average	Average annual change 2005-09
Sail boats							
South Wide Bay	2.59	2.65	2.65	2.83	2.74	2.69	1.4%
North Wide Bay	1.53	1.70	2.05	2.15	2.13	1.91	8.6%
South Central	0.24	0.22	0.21	0.17	0.21	0.21	-3.4%
Darling Downs	0.20	0.27	0.25	0.26	0.30	0.25	11.0%
South West QLD	0.00	0.00	0.00	0.00	0.12	0.02	n.a.

RBC	2005	2006	2007	2008	2009	Average	Average annual change 2005-09
Boats without sails							
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%
South Central	40.59	43.50	44.95	46.69	48.22	44.79	4.4%
Darling Downs	29.35	29.60	30.04	30.99	32.03	30.40	2.2%
South West QLD	16.37	19.00	20.61	26.71	29.12	22.36	15.5%
All boats							
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%
South Central	40.83	43.72	45.16	46.85	48.43	45.00	4.4%
Darling Downs	29.55	29.87	30.28	31.25	32.33	30.66	2.3%
South West QLD	16.37	19.00	20.61	26.71	29.24	22.39	15.6%

Note: A negative or positive average annual change figure represents a decrease or increase in the incidence of boat ownership within the catchment
Source: ABS (2010), MSQ (various years)

5.6.4 Population projections

The population projects for the RBCs for the Southern Region rely on the latest edition of the PIFU medium series population projections.

Most RBCs within this region are anticipated to record positive population growth between 2010 and 2031. However the population of the South West QLD RBC is projected to have an increase of less than 0.1% over this period. The population projections for the Southern RBCs in 5 year increments are detailed in Table 13.

Table 13 Population projections – 2010-2031

RBC	2010	2011	2016	2021	2026	2031	Average annual growth
Darling Downs	217,879	221,666	239,394	258,455	276,637	294,999	1.5%
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%
South Central	42,903	43,002	44,408	45,995	47,181	48,083	0.5%

RBC	2010	2011	2016	2021	2026	2031	Average annual growth
South West QLD	8,155	8,103	8,101	8,138	8,163	8,183	0.0%
Total	**562,098**	**569,717**	**614,650**	**659,102**	**703,366**	**748,454**	**-**

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[6].

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.

Total boat registrations in the Southern Region are projected to increase by 10,870 by 2031, with the largest increase in boat registration occurring in the South Wide Bay RBC (Table 14).

Table 14 Projected boat registrations by type – base case scenario 2010-2031

RBC	2010	2011	2016	2021	2026	2031
Estimated boats with sail						
South Wide Bay	502	511	559	602	644	686
North Wide Bay	229	230	245	261	278	298
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
Total	**807**	**818**	**885**	**950**	**1014**	**1081**
Estimated boats without sail						
South Wide Bay	14,175	14,415	15,779	16,978	18,164	19,335
North Wide Bay	8,947	8,997	9,617	10,248	10,981	11,805

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

RBC	2010	2011	2016	2021	2026	2031
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
Total	**32,400**	**32,809**	**35,396**	**37,877**	**40,403**	**42,998**
Total boats						
South Wide Bay	14,678	14,926	16,338	17,580	18,808	20,021
North Wide Bay	9,176	9,227	9,862	10,509	11,259	12,103
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
Total	**33,208**	**33,627**	**36,281**	**38,827**	**41,417**	**44,078**

5.6.6 Projected trailerable boats

To estimate the projected size of the trailerable boat fleet, the proportions as outlined in Table 15 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 10 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 Southern Region RBCs (i.e. those not stored in a wet marina berth) range from 93.2% in the South Wide Bay RBC to 96.7% in the South Central RBC (Table 15).

The incidence of boats requiring a boat ramp (i.e. those not stored in a wet marina berth) was highest in the South Central RBC and lowest in the South Wide Bay RBC.

Table 15 Incidence of boats requiring a boat ramp

RBC	Boats with sail	Boats without sail	All boats
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%

For the base case scenario between 2010 and 2031, the largest increase in boats requiring a boat ramp is projected to occur in the South Wide Bay RBC (Table 16).

Table 16 Projected boats requiring a boat ramp – base case scenario 2010-2031

RBC	2010	2011	2016	2021	2026	2031	Change
South Wide Bay	13,684	13,916	15,223	16,397	17,534	18,679	4,995
North Wide Bay	8,772	8,821	9,429	10,049	10,769	11,577	2,805
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
Total	**33,472**	**33,869**	**36,375**	**38,809**	**41,260**	**43,802**	**10,309**

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 17).

Table 17 Operating time by holiday period

Holiday	Proportion of respondents using boat
Christmas / New Year	73%
Easter	48%
School holidays	37%
Queen's Birthday	30%
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 17 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 18).

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

Table 18 Estimated demand on a weekend

Holiday	Usage	Weekends included	Times used per period	Usage / weekend
Christmas / 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 estimating average demand on a 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 19).

Table 19 Boats demanding a boat lane – off-peak, average and peak demand scenarios 2010 to 2031

RBC	2010	2011	2016	2021	2026	2031
Off-peak demand						
South Wide Bay	1,095	1,113	1,218	1,312	1,403	1,494
North Wide Bay	702	706	754	804	861	926
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
Total	**2,517**	**2,548**	**2,748**	**2,943**	**3,138**	**3,341**
Average demand						
South Wide Bay	1,916	1,948	2,131	2,296	2,455	2,615
North Wide Bay	1,228	1,235	1,320	1,407	1,508	1,621
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
Total	**4,404**	**4,460**	**4,809**	**5,151**	**5,493**	**5,848**
Peak demand						

RBC	2010	2011	2016	2021	2026	2031
South Wide Bay	2,737	2,783	3,045	3,279	3,507	3,736
North Wide Bay	1,754	1,764	1,886	2,010	2,154	2,315
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
Total	**6,292**	**6,372**	**6,873**	**7,358**	**7,847**	**8,354**

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 20 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 20 Boat lane demand – base case scenario 2010-2031

RBC	Existing number of lanes	2010	2011	2016	2021	2026	2031
Off-peak demand							
South Wide Bay	52	27	28	30	33	35	37
North Wide Bay	42	18	18	19	20	22	23
Darling Downs	15	14	14	15	16	17	18
South Central	11	4	4	4	4	4	4

RBC	Existing number of lanes	2010	2011	2016	2021	2026	2031
South West QLD	3	0	0	0	0	0	0
Total	**123**	**63**	**64**	**68**	**73**	**78**	**82**
Average demand							
South Wide Bay	52	48	49	53	57	61	65
North Wide Bay	42	27	28	30	33	35	37
Darling Downs	15	24	24	26	28	30	32
South Central	11	7	7	7	8	8	8
South West QLD	3	1	1	1	1	1	1
Total	**123**	**107**	**109**	**117**	**127**	**135**	**143**
Peak demand							
South Wide Bay	52	68	70	76	82	88	93
North Wide Bay	42	44	44	47	50	54	58
Darling Downs	15	34	34	37	40	43	45
South Central	11	10	10	10	11	11	11
South West QLD	3	1	1	1	1	1	1
Total	**123**	**157**	**159**	**171**	**184**	**197**	**208**

TMR expects off-peak demand to be met in almost all circumstances. When providing recreational 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 Southern Region.

5.8 Impact on boat lane demand – tides, pontoons 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 Southern Region are detailed in Table 21, along with the calculation of the impact of these on the total available boat ramp lanes.

Table 21 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
South Wide Bay	40	13	-4	4	2	51
North Wide Bay	34	10	-3	1	0.5	41.5
Darling Downs	12	3	-1	0	0	14
South Central	11	0	0	1	0.5	11.5
South West QLD	3	0	0	1	0.5	3.5
Total	**100**	**26**	**-8**	**7**	**2**	**121.5**

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

Table 22 Demand incorporating tide accessibility and pontoons/floating walkways

RBC	Total lanes	2010	2011	2016	2021	2026	2031
Average demand scenario							
South Wide Bay	51	48	49	53	57	61	65
North Wide Bay	41.5	27	28	30	33	35	37
Darling Downs	14	24	24	26	28	30	32
South Central	11.5	7	7	7	8	8	8
South West QLD	3.5	1	1	1	1	1	1
Total	**121.5**	**107**	**109**	**117**	**127**	**135**	**143**

5.9 RBC demand

The recreational boating facilities demand assessment undertaken for the Southern 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.

There is currently no high demand RBCs located within the Southern Region. However, if there is no provision of additional facilities South Wide Bay will become a medium demand RBC by 2021. There is currently greatest demand within the Darling Downs RBC, with this remaining the highest demand RBC for the next 10 years (Table 23 and Figure 8).

There is currently a surplus of boat ramp lanes within the North Wide Bay and South West QLD RBCs, with the latter having limited projected demand within the next 10 years.

The focus of the provision of recreational boating facilities for the Southern Region is on the Darling Downs, South Wide Bay and North Wide Bay RBCs.

Table 23 RBC demand categorisation – 40 boats/lane/day

RBC	Existing lanes	2010	Lane demand*	2016	Lane demand*	2021	Lane demand*
South Wide Bay	51	48	-3	53	2	57	6
North Wide Bay	41.5	27	-14	30	-11	33	-8
Darling Downs	14	24	10	26	12	28	14
South Central	11.5	7	-4	7	-4	8	-3
South West QLD	3.5	1	-2	1	-2	1	-2
Total	**121.5**	**107**	**-13**	**117**	**-3**	**127**	**7**

* Rounded down to the nearest whole number.

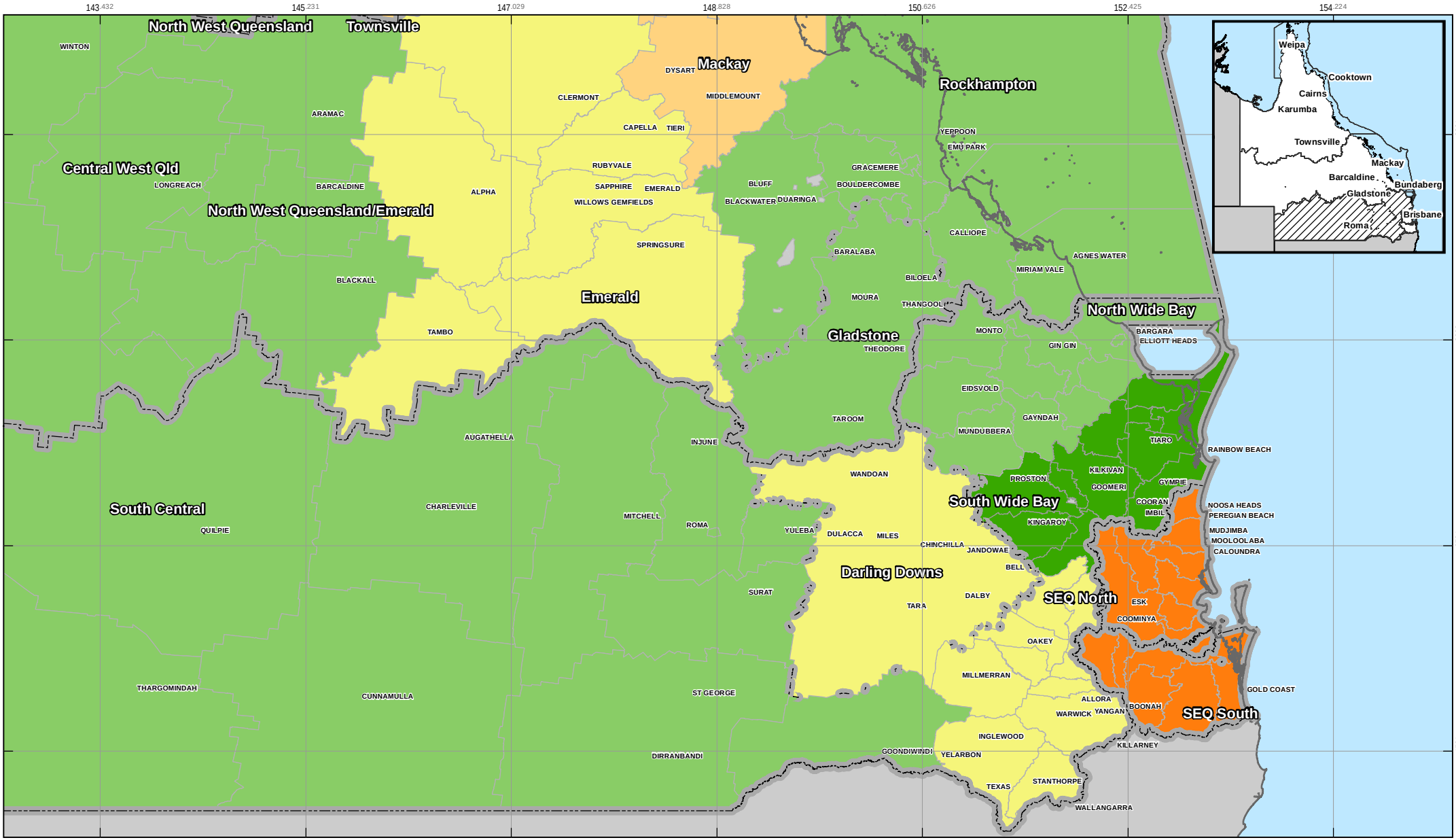
5.9.1 Limitations on projected demand

As identified in Table 23, there is a significant shortfall in the provision of boat ramp lanes in the Southern Region.

It is intended that the priorities recommended in this study will assist in achieving the projected lane demand for the Southern Region. However there are a number of 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.



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Kilometres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Coastline
- TMR Region
- Adjacent State

Demand Region

- High
- Medium-High
- Medium
- Low-Medium
- Low

Recreational Boating Facilities
Demand Forecasting Study

Job Number	41-22459
Revision	C
Date	30 AUG 2011

Southern Region
High Demand RBC's

Figure 8

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

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6. Identification of needs

6.1 Introduction

The process of prioritisation of the sites to identify those recommended for short term implementation (Priority 1), medium term implementation (Priority 2) and long term implementation (Priority 3) combines:

- 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 Southern Region is depicted in Figure 9 and described in the following sections.

6.2 RBC demand

As detailed in section 5.9, the assessment of current and future boat ramp lane demand by RBC is based on the identification of high, medium and low demand catchments. For the Southern Region these have been identified in Table 23.

The focus of the provision of recreational boating facilities for the Southern Region is on the Darling Downs, South Wide Bay and North Wide Bay RBCs.

6.3 Identification of potential sites – consultation process

To assist in the process of identification of priorities for the provision of recreational boating facilities within each of the RBCs of the Southern Region, the site specific information collected through the consultation process was collated and reviewed as part of the site assessment. The feedback included that obtained from the community survey, stakeholder workshops, and information provided by key and other stakeholders.

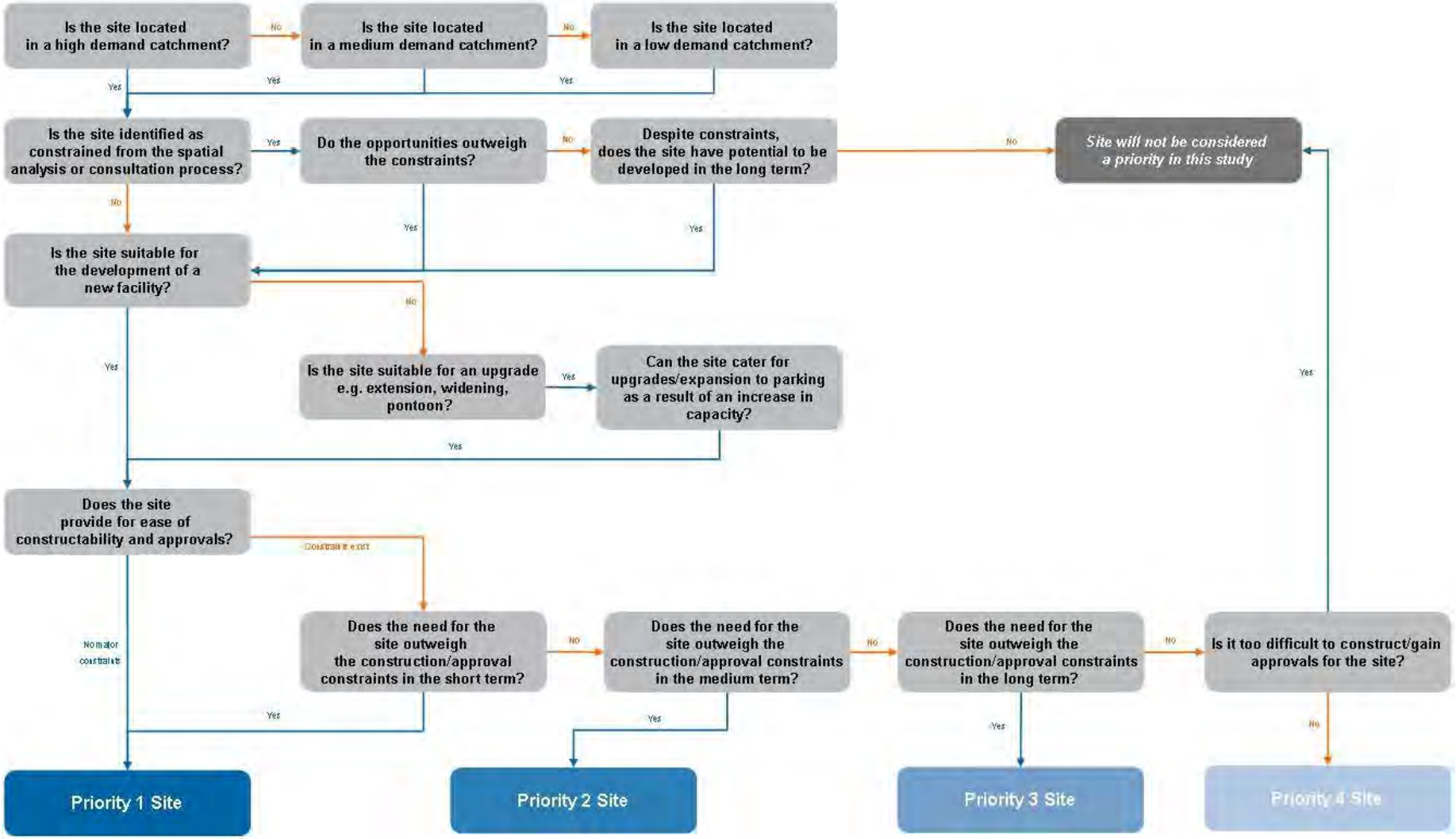
This information, along with the other information available for each of the facilities, was collated and potential new sites and priority sites identified. These sites then provided the targeted locations for the spatial analysis component of the project.

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 9 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 4.4) identified during the consultation phase of the project have been assessed as part of the prioritisation process. Table 24 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 or 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 current program.

Table 24 Stakeholder priorities

Site	Stakeholder comments	RBC	Rationale
Ross Street, Burrum Heads	◗ upgrade boat ramp in response to public safety risks and usability during tide changes ◗ the facility is subject to strong cross currents and has a severe drop-off at the end of the boat ramp ◗ expand area for parking to service boat ramp demand	South Wide Bay *low-medium demand RBC*	The need for a new site at Burrum Heads for a boat ramp has been identified as a Priority 1 project

Site	Stakeholder comments	RBC	Rationale
Burrum Road, Burrum Heads	◗ stakeholders identified an upgrade of the Ross Street boat ramp at Burrum Heads as a very high priority	South Wide Bay *low-medium demand RBC*	The need for a new site at Burrum Heads for a boat ramp has been identified as a Priority 1 project
Fairymead, Bundaberg	◗ possible site for new boat ramp to provide river access (3-4 lane facility is desirable) with pontoon or floating walkway	North Wide Bay *low demand RBC*	Fairymead has been identified as a priority for the Southern Region to provide users north of the Burnett river with river access.
Marshall street Goondiwindi	◗ structural modification to boat ramp slope and width ◗ construct pontoon adjacent to boat ramp ◗ expand area for parking to service boat ramp demand	South Central *low demand RBC*	South Central RBC is a low demand catchment and therefore this location is not a priority for this study.
Bowen street St George	◗ construct new pontoon adjacent to existing boat ramp ◗ expand area for parking to service boat ramp demand	South Central *low demand RBC*	South Central RBC is a low demand catchment and therefore this location is not a priority for this study.
River Heads	◗ construct pontoon/floating walkway ◗ expand area for parking to service boat ramp demand ◗ manage conflict between recreational boat users and passengers for the barge (separate parking area)	South Wide Bay *low-medium demand RBC*	There is no land available or car park expansion. Therefore, increasing the capacity of this boat ramp is not possible.

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 7.10.

For the Southern Region no sites have been identified within the Darling Downs RBC due to the majority of the recreational boating facilities within this region being located on dams, thus not being TMR facilities. Opportunities for this RBC are addressed through opportunities on dams as detailed section 7.10.

The priorities for the Southern Region are summarised in Table 25.

Table 25 Southern Region priorities

Priority	Recommendations	RBC
Priority 1	Boat ramp Burrum Heads – new facility	South Wide Bay
	Boat ramp Snapper Creek - upgrade existing facility	South Wide Bay
	Boat ramp Beaver Rock - upgrade existing facility	South Wide Bay
	Boat ramp Carlo Point - upgrade existing facility	South Wide Bay
	Boat ramp Fairymead – new facility	North Wide Bay
Priority 2	Boat ramp Mingo Crossing Burnett River - upgrade existing facility	North Wide Bay

Priority	Recommendations	RBC
	Boat ramp Walkers Point Manley Smith Drive - upgrade existing facility	North Wide Bay
	Boat ramp Toogoom - upgrade existing facility	South Wide Bay
	Boat ramp Burnett Heads - upgrade existing facility	North Wide Bay
	Boat ramp Four Knots Point Strathdees Road - upgrade existing facility	North Wide Bay
Priority 3	Boat ramp Toolara Toolara Road - upgrade existing facility	South Wide Bay
	Boat ramp Claude Wharton Weir Gayndah - upgrade existing facility	North Wide Bay
	Boat ramp Littabella Creek - new facility	North Wide Bay
	Boat ramp Gatakers Landing - upgrade existing facility	South Wide Bay
	Boat ramp Miara, Yandaran-Miara Road - upgrade existing facility	North Wide Bay
Priority 4	Boat ramp Winfield Road Baffle Creek – upgrade existing facility	North Wide Bay
	Boat ramp Condamine River Caliguel Lagoons – upgrade existing facility	Darling Downs
	Boat ramp Chinchilla Weir wall – upgrade existing facility	Darling Downs
	Boat ramp Dirranbandi – upgrade existing facility	South Central
	Boat ramp Ward River – upgrade existing facility	South Central

7.4 Demand following construction of priorities

The priorities identified above have been recommended to assist in catering for the projected lane demand for the Southern Region. 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 26 identifies the project lane demand prior to the construction of the priorities.

Table 27 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.

Table 26 Boat ramp lane demand prior to the construction of priorities

RBC	Existing lanes	2010	Lane demand*	2016	Lane demand*	2021	Lane demand*
South Wide Bay	51	48	-3	53	2	57	6
North Wide Bay	41.5	27	-14	30	-11	33	-8
Darling Downs	14	24	10	26	12	28	14
South Central	11.5	7	-4	7	-4	8	-3
South West QLD	3.5	1	-2	1	-2	1	-2
Total	**121.5**	**107**	**-13**	**117**	**-3**	**127**	**7**

Table 27 Boat ramp 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*
South Wide Bay	52.5	48	-4	62.5	53	-9	63.5	57	-6
North Wide Bay	43.5	27	-16	52.5	30	-22	57	33	-24
Darling Downs	14	24	10	14	26	12	14	28	14
South Central	11.5	7	-4	13	7	-6	13	8	-5
South West QLD	3.5	1	-2	4	1	-3	4	1	-3
Total	**125**	**107**	**-16**	**146**	**117**	**-28**	**151.5**	**127**	**-24**

* Rounded down to the nearest whole number.

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 be 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 South Wide Bay RBC, the demand of the trailerable boat fleet has been identified as being as being low to medium 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.

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 28 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 28 Priority 1 site - boat ramp Burrum Heads

Site name	Boat ramp Burrum Heads
Location	Burrum Heads
RBC	South Wide Bay (low-medium demand RBC)
Full tide or part tide	Full tide
Site characteristics	The existing facilities are in a poor condition and are unsafe to use. A new facility is required to cater for users in the Burrum Heads area.
Consultation feedback	During the consultation process, stakeholders identified problems at both the Ross Street and Burrum Heads Road boat ramps, with many respondents regarding this area as the top priority for the Southern Region, describing the current situation as 'critical' and in need of immediate attention. Stakeholders have advised that both boat ramps are subject to cross currents and have severe and dangerous drop-offs at the end of the boat ramps. In order to resolve the issues at Burrum Heads, Fraser Coast Regional Council (FCRC) and TMR have been looking at candidate sites for the provision of a new recreational boating facility. However, due to site and approval constraints a decision has yet to be reached on the location of a new boat ramp. As a Priority 1 for this region, it is recommended that continued investigations be undertaken to establish a feasible location for a new boat ramp in this area.
Proposed works	A potential new site has not been identified as part of this study, however the following is required in this locality: ◗ undertake further investigation on potential site for new facility ◗ construct a new boat ramp (minimum four lanes) ◗ provision of CTU parking ◗ lighting, water, fish cleaning facility and toilets.
Rationale	As there is a currently a lack of resolution on a suitable site for a new facility in Burrum Heads, it is recommended that further investigation be undertaken so that the development of new or additional recreational boating facilities in this location can proceed within the Priority 1 timeframe.

1:10,000 (at A4)

0 17.5 35 70 105 140

Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

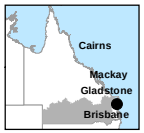
N

LEGEND

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

Suitability Surface

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



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Indicative Site Plan
Priority 1 Site - Burrum Heads

Figure 10

G:\41\22459\GIS\Maps\MXD\High Priority Sites\Indicative Site Plans\Final\41_22459_01_Southern_HP_Site_04.mxd

Data source: Imagery - Google Earth Pro (Date Extracted 01/09/2011); 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 29 Priority 1 site - boat ramp Snapper Creek, Tin Can Bay Road

Site name	Boat ramp Snapper Creek, Tin Can Bay Road	
Location	Snapper Creek State Boat Harbour	
RBC	South Wide Bay (low-medium demand RBC)	
Full tide or part tide	Full tide	
Site characteristics	The Snapper Creek boat ramp has three lanes with a pontoon nearby. The boat ramp is supported by lighting, water and toilets and picnic areas. There are approximately 120 existing CTUs provided at this facility.	
Consultation feedback	Positive feedback on this boat ramp is focused on its usability and safety. The boat ramp is unaffected by tides and the weather, has a good surface and has an associated pontoon and wash down facilities. Stakeholders identified a need for the provision of additional parking. The Fraser Straits Marina is proposed to be developed adjacent to the existing boat ramp. The proposed development includes a marina of approximately 240 berths to be built on reclaimed land on the south bank of Snapper Creek (Fraser Straits Marina, 2010). The existing facilities including the boat ramp and car park will be retained.	
Proposed works	◗ provision of an additional two lanes ◗ floating walkway down the centre of the four lanes ◗ provision of additional CTU parking. The indicative site layout is shown on Figure **11**.	
Rationale	The Snapper Creek boat ramp is currently in good condition and is a popular recreational boating facility servicing this region providing protected full tide access to the Great Sandy Straits. The boat ramp will not be upgraded as part of the Fraser Straits Marina development. There is considerable potential to increase the capacity of the existing boat ramp and expand the car park to cater for increased users.	
Indicative cost (excluding GST)	Water based infrastructure	$820,000
	Land based infrastructure	$880,000

1:1,500 (at A4)

0 5 10 20 30 40

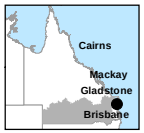
Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Cadastre Boundaries
- Existing Site Footprint
- Existing Parking (130 Lots)
- Proposed Site Footprint
- Proposed Parking (41 Lots)



Recreational Boating Facilities Demand Forecasting Study

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Indicative Site Plan
Priority 1 Site - Snapper Creek

Figure 11

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Table 30 Priority 1 site - boat ramp Beaver Rock south bank Mary River

Site name	Boat ramp Beaver Rock south bank Mary River	
Asset number	20052827	
Location	South bank Mary River - 6 Nm upstream from River Heads	
RBC	South Wide Bay (low-medium demand RBC)	
Full tide or part tide	Full tide	
Site characteristics	The existing boat ramp is a single lane ramp with no supporting land based facilities. There is a large informal car park and the access road is unsealed. The boat ramp provides access to the Mary River (upstream) and the Great Sandy Strait	
Consultation feedback	This boat ramp has been identified by stakeholders as a good facility. However, mud is deposited on the boat ramp can result in it becoming slippery and dangerous. Regular maintenance is therefore required.	
Proposed works	◗ upgrade to two lane boat ramp ◗ sealed car park with additional CTU spaces ◗ pontoon/floating walkway ◗ sealed access road (medium-long term) ◗ toilet facilities ◗ lighting. The indicative site layout is shown on Figure 12.	
Rationale	The Beaver Rock boat ramp is a popular boat ramp providing users with access to the Mary River and the Great Sandy Strait. It is located in a catchment with the highest demand within the Southern Region. The proposed upgrades have the potential to alleviate pressure on nearby boat ramps such as the River Heads.	
Indicative cost (excluding GST)	Water based infrastructure	$970,000
	Land based infrastructure	$1,210,000

1:1,500 (at A4)

0 5 10 20 30 40

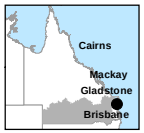
Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Turning Circle
- Cadastre Boundaries
- Proposed Site Footprint
- Proposed Parking (62 Lots)



Recreational Boating Facilities Demand Forecasting Study

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Indicative Site Plan
Priority 1 Site - Beaver Rock

Figure 12

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Table 31 Priority 1 site - boat ramp Fairymead

Site name	Boat ramp Fairymead	
Location	End River Road, opposite Strathdees Road	
RBC	North Wide Bay (low demand RBC)	
Full tide or part tide	Full tide	
Site characteristics	Greenfield site that is currently used for agriculture, and is located adjacent to the cross river ferry. The site has been identified suitable for a new facility as it has minimal constraints and it provides full tide access.	
Consultation feedback	Stakeholders identified this site as a possible location for a new 3-4 lane boat ramp supported by a pontoon and/or floating walkway. The river is self-cleaning at this point, and the water is deep. A boat ramp at this location would take pressure off the southern shore and the CBD facilities.	
Proposed works	◗ new four lane boat ramp ◗ sealed car park with 90 CTUs ◗ access road (from River Road) ◗ toilet facilities ◗ lighting ◗ wash down facility. The indicative site layout is shown on Figure 13.	
Rationale	This location is suitable for a recreational boating facility as it will provide deep water, full tide access to the Burnett River. It will service the community located on the northern side of the river as well as Burnett Heads and Bundaberg. The site is located outside of the Bundaberg CBD and has the potential to take the pressure off the boat ramps located in the CBD and Burnett Heads.	
Indicative cost (excluding GST)	Water based infrastructure	$890,000
	Land based infrastructure	$1,780,000

1:1,500 (at A4)

0 5 10 20 30 40

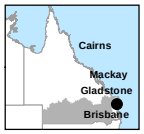
Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Turning Circle
- Cadastre Boundaries
- Proposed Site Footprint
- Proposed Parking (100 Lots)



Recreational Boating Facilities Demand Forecasting Study

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Date 29 AUG 2011

Indicative Site Plan
Priority 1 Site - Fairymead

Figure 13

G:\41\22459\GIS\Maps\MXD\High Priority Sites\Indicative Site Plans\Final\41_22459_01_Southern_HP_Site_04.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 32 Priority 1 site - boat ramp Carlo Point Carlo Road

Site name	Boat ramp Carlo Point Carlo Road	
Asset number	20052804	
Location	East side Tin Can Bay Inlet	
RBC	South Wide Bay (low-medium demand RBC)	
Full tide or part tide	Full tide	
Site characteristics	Carlo Point boat ramp comprises of four lanes and has land based facilities including water, lighting and a picnic area. The boat ramp provides access to Tin Can Inlet and the Great Sandy Strait.	
Consultation feedback	Parking issues are evident as the area is used intensively by recreational boaties, charter and hire boats. In addition there are also restaurants, and casual and permanent moorings in the vicinity of the boat ramp. There are no toilet facilities provided in the vicinity of this boat ramp. The Carlo Point Marina development is proposed adjacent to this facility. The proposed marina has been designed to integrate with the existing boat ramp and car park.	
Proposed works	◗ upgrade existing boat ramp (resurface) ◗ provision of a pontoon/floating walkway ◗ expansion of car parking to include additional CTUs ◗ provision of toilet facilities. The indicative site layout is shown on Figure 14.	
Rationale	It is expected that with the development of the proposed Carlo Point Marina, there will an increase in the number of users using the existing boat ramp. Upgrades to the boat ramp and the car park will need to be undertaken to cater for increased usage of the facility. This boat ramp was identified as a priority by stakeholders in the Gympie and Fraser Coast areas.	
Indicative cost (excluding GST)	Water based infrastructure	$820,000
	Land based infrastructure	$650,000

1:1,500 (at A4)

0 5 10 20 30 40

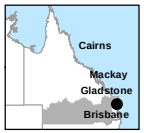
Metres

Geographic Coordinate System
Horizontal Datum: Geocentric Datum of Australia 1994

N

LEGEND

- Indicative Site Plan
- Turning Circle
- Cadastre Boundaries
- Existing Site Footprint
- Existing Parking (68 Lots)
- Proposed Site Footprint
- Proposed Parking (40 Lots)



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Indicative Site Plan
Priority 1 Site - Carlo Point

Figure 14

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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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7.7 Priority 2 sites

The sites identified as Priority 2 for implementation include upgrading of facilities at existing locations. The sites are described in detail in Table 33 to Table 37 below.

Table 33 Priority 2 site - boat ramp Mingo Crossing Burnett River

Site name	Boat ramp Mingo Crossing Burnett River
Asset number	20053152
Location	off Gayndah Mt Perry Road
RBC	North Wide Bay (low demand RBC)
Full tide or part tide	Full tide
Site characteristics	The Mingo Crossing boat ramp is a single lane boat ramp located off Gayndah Mount Perry Road. The boat ramp provides access to the Burnett River and has water, toilet facilities and a picnic area. The boat ramp is in a sheltered location and attracts debris and algae growth.
Consultation feedback	Stakeholders identified Mingo Crossing boat ramp as a good facility which is used predominantly by water skiers.
Recommended works	◗ shift the boat ramp downstream near the current CTU ◗ installing a pontoon ◗ resurfacing the boat ramp (plastic decking). The site constraints are shown on Figure 15.
Rationale	This boat ramp provides users from Gayndah, Mount Perry and other nearby communities with access to the Burnett River. The boat ramp is a popular boat ramp and there is potential for a pontoon to be installed and the boat ramp to be resurfaced in the medium term. There is also potential for the boat ramp and supporting infrastructure to be expanded in the long term when demand increases.

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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Site Constraints
Priority 2 Site - Mingo Crossing

Figure 15

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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 34 Priority 2 site - boat ramp Burnett Heads

Site name	Boat ramp - Burnett Heads
Asset number	20052837
Location	North western side of Burnett Heads State Boat Harbour
RBC	North Wide Bay (low demand RBC)
Full tide or part tide	Part tide
Site characteristics	The Burnett Heads boat ramp comprises of 5 lanes with a pontoon adjacent to the facility. The land based facilities associated with this ramp include water, lighting, toilets and a picnic area. The boat ramp is located within the Burnett Heads State Boat Harbour and provides users access to the river and is located within close proximity to the open water.
Consultation feedback	Feedback from users and stakeholders identified that the boat ramp is user friendly as it has a pontoon and is structurally in good condition. Concerns were raised over the condition of the car park with users suggesting that it be resurfaced and expanded to include more CTUs. Feedback also identified that the top portion of the boat ramp requires re-surfacing.
Recommended works	◗ upgrading of boat ramp surface ◗ resurfacing of car park. The site constraints are shown on Figure 16.
Rationale	The Burnett Heads boat ramp is a popular facility servicing the Burnett Heads and Wide Bay community. Maintenance to this boat ramp and supporting facilities is required in the medium term 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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Date 29 AUG 2011

Site Constraints
Priority 2 Site - Burnett Heads

Figure 16

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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 Walkers Point Manley Smith Drive

Site name	Boat ramp - Walkers Point Manley Smith Drive
Asset number	20052823
Location	North Bank of Burrum River
RBC	North Wide Bay (low demand RBC)
Full tide or part tide	Full tide
Site characteristics	The Walkers Point boat ramp is a one lane boat ramp located on the north bank of the Burrum River with land based facilities includes water, lighting, toilets and a picnic area. The boat ramp provides access to the Burrum River and the Fraser Coast and caters predominantly for the Woodgate community. An upgrade and extension to the boat ramp is proposed as part of the current program.
Consultation feedback	Positive feedback provided through consultation indicates that boat ramp is well liked and is located in deep water. Concerns were raised in regards to the length of the boat ramp and cross currents. Stakeholders identified the need for the boat ramp to be extended and suggested rock protection to management currents.
Proposed works	◗ construction of an additional lane ◗ expansion of the car park to provide for additional CTU spaces. The site constraints are shown on Figure 17.
Rationale	The existing beach boat ramp in Woodgate (asset no. 20052824) may decommissioned (refer to section 7.10.2) as it is subject to weather and is limited through the lack of available parking. The Walkers Point boat ramp is in a good location and provides users with river and ocean access. Upgrading and expanding the Walkers Point boat ramp will effectively service the Woodgate area and cater for future demand in the area.

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

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Site Constraints
Priority 2 Site - Walkers Point

Figure 17

G:\41\22459\GIS\Maps\MXD\Medium Priority Sites\Final\41_22459_01_Southern_MP_Site_03.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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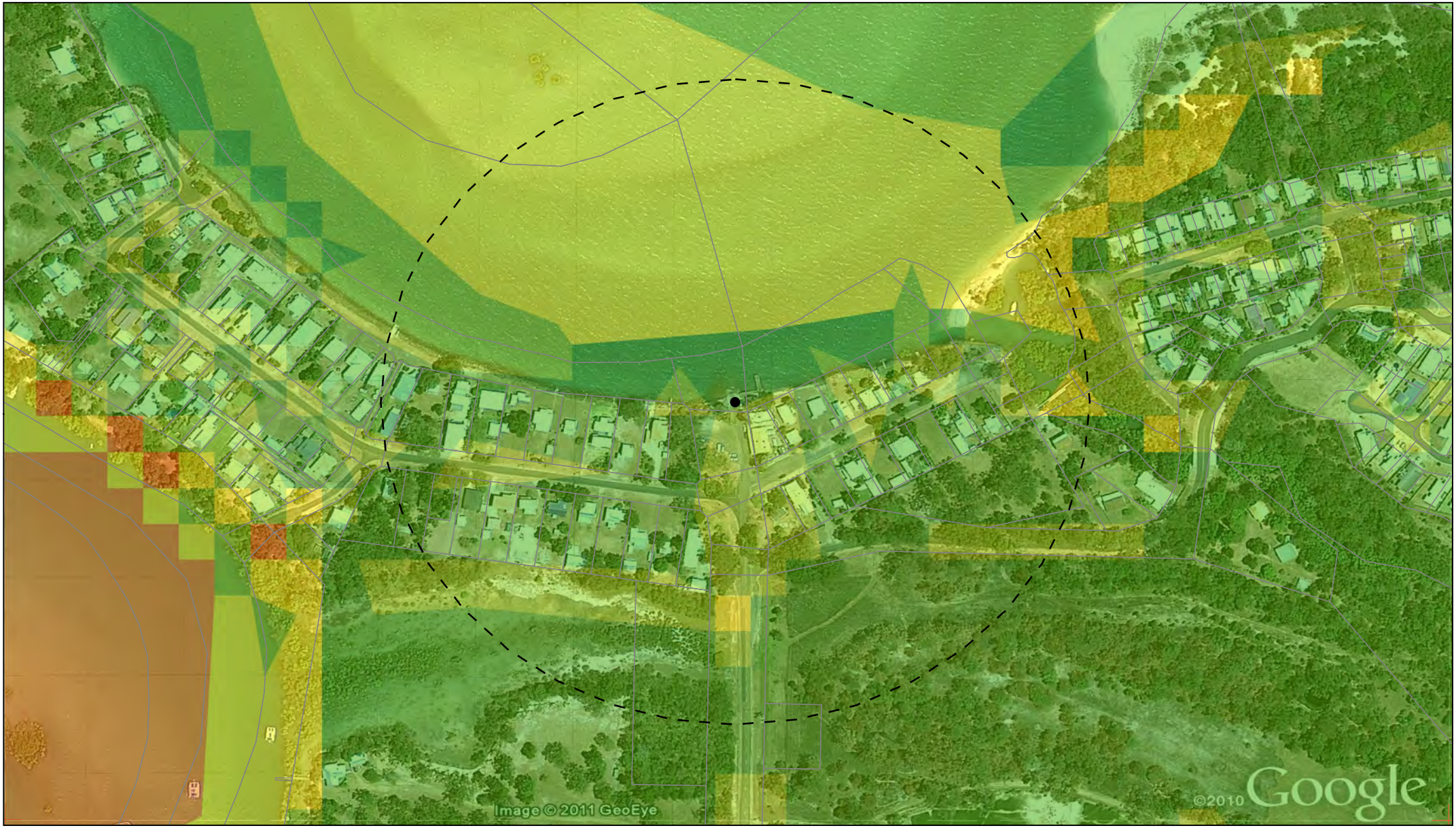
Table 36 Priority 2 site - boat ramp Toogoom, Toogoom Road

Site name	Boat ramp Toogoom Toogoom Road
Asset number	20052819
Location	Beelbi Creek - Toogoom
RBC	South Wide Bay (low-medium demand RBC)
Full tide or part tide	Part tide
Site characteristics	The existing Toogoom boat ramp comprises of two lanes and has water, lighting, toilets and picnic facilities. A queuing beach has recently been built adjacent to the boat ramp as part of the current program. Existing car parking is limited with only 7 CTU spaces.
Consultation feedback	Parking for this boat ramp is inadequate and is also subject to parking conflicts with commercial and residential uses.
Proposed works	Construction of car park on vacant land 200 metres from the boat ramp on the eastern side of Toogoom Road. The site constraints are shown on Figure 18.
Rationale	Parking is a major issue and expanding the car park is considered a priority by stakeholders. The construction of the queuing beach will improve the operation of this facility and attract more users. More parking is therefore required at this boat ramp to cater for existing and 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

Recreational Boating Facilities Demand Forecasting Study

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Date 01 SEP 2011

Site Constraints
Priority 2 Site - Toogoom

Figure 18

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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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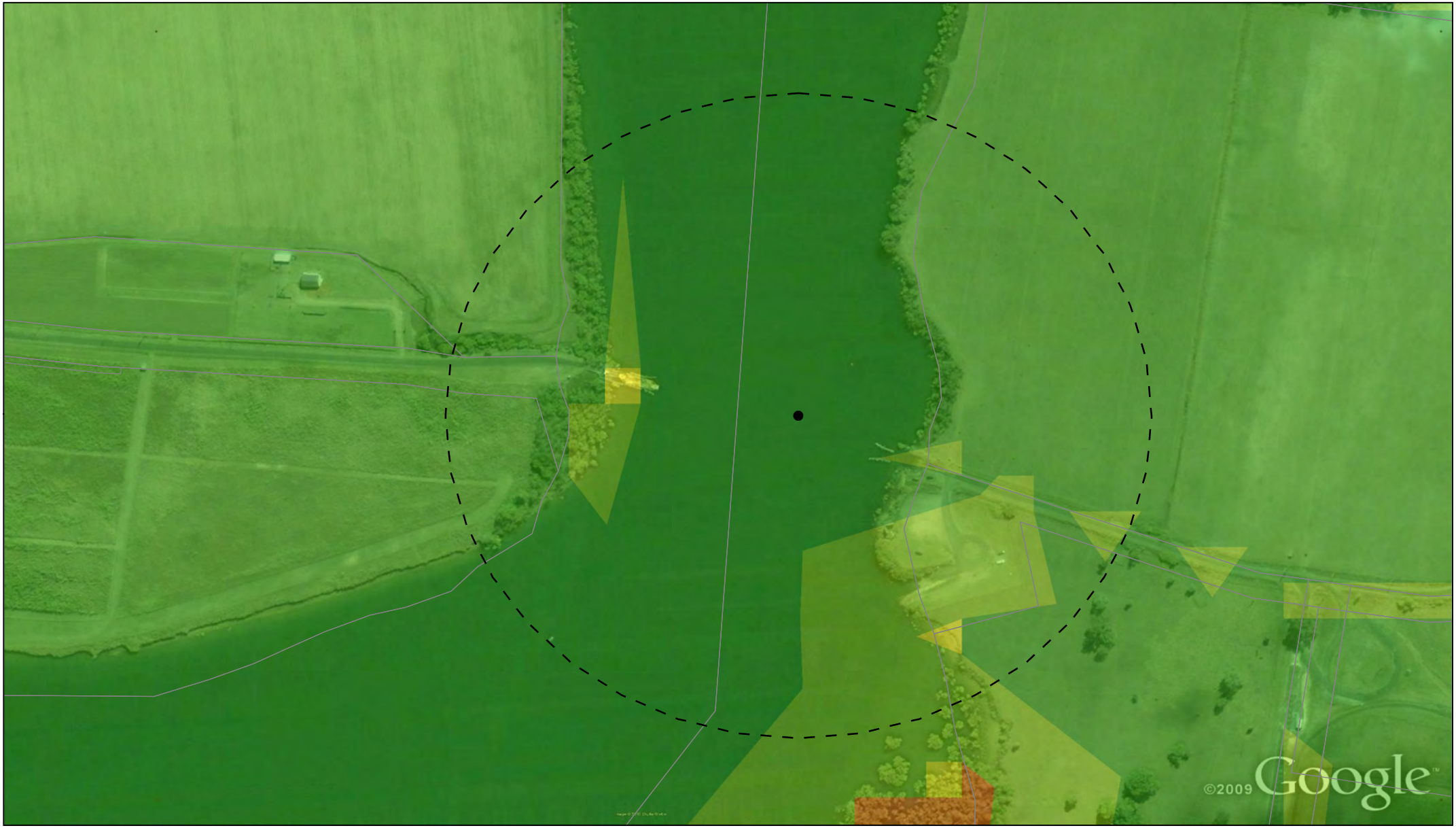
Table 37 Priority 2 site - boat ramp Four Knots Point Strathdees Road

Site name	Boat ramp Four Knots Point Strathdees Road
Asset number	20052835
Location	South bank of Burnett River
RBC	North Wide Bay (low demand RBC)
Full tide or part tide	Full tide
Site characteristics	The Strathdees Road boat ramp is a two lane boat ramp located adjacent to the cross river ferry. There is no formal car parking or land based facilities at this site.
Consultation feedback	Consultation identified that there are presently no car parking facilities at this boat ramp and that there is potential for upgrade in the medium term.
Proposed works	◗ upgrade and expand car park ◗ expand and resurface boat ramp ◗ provision of a pontoon/floating walkway ◗ toilets ◗ lighting. The site constraints are shown on Figure 19.
Rationale	This boat ramp provides access to the Burnett River and the Fraser Coast and attracts users predominantly from the areas of Burnett Heads and Bundaberg. Upgrades to the boat ramp and car park are required at this facility to attract more users and alleviate pressure on nearby boat ramps.



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 - Strathdees

Figure 19

G:\41\22459\GIS\Maps\MXD\Medium Priority Sites\Final\41_22459_01_Southern_MP_Site_05.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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7.8 Priority 3 sites

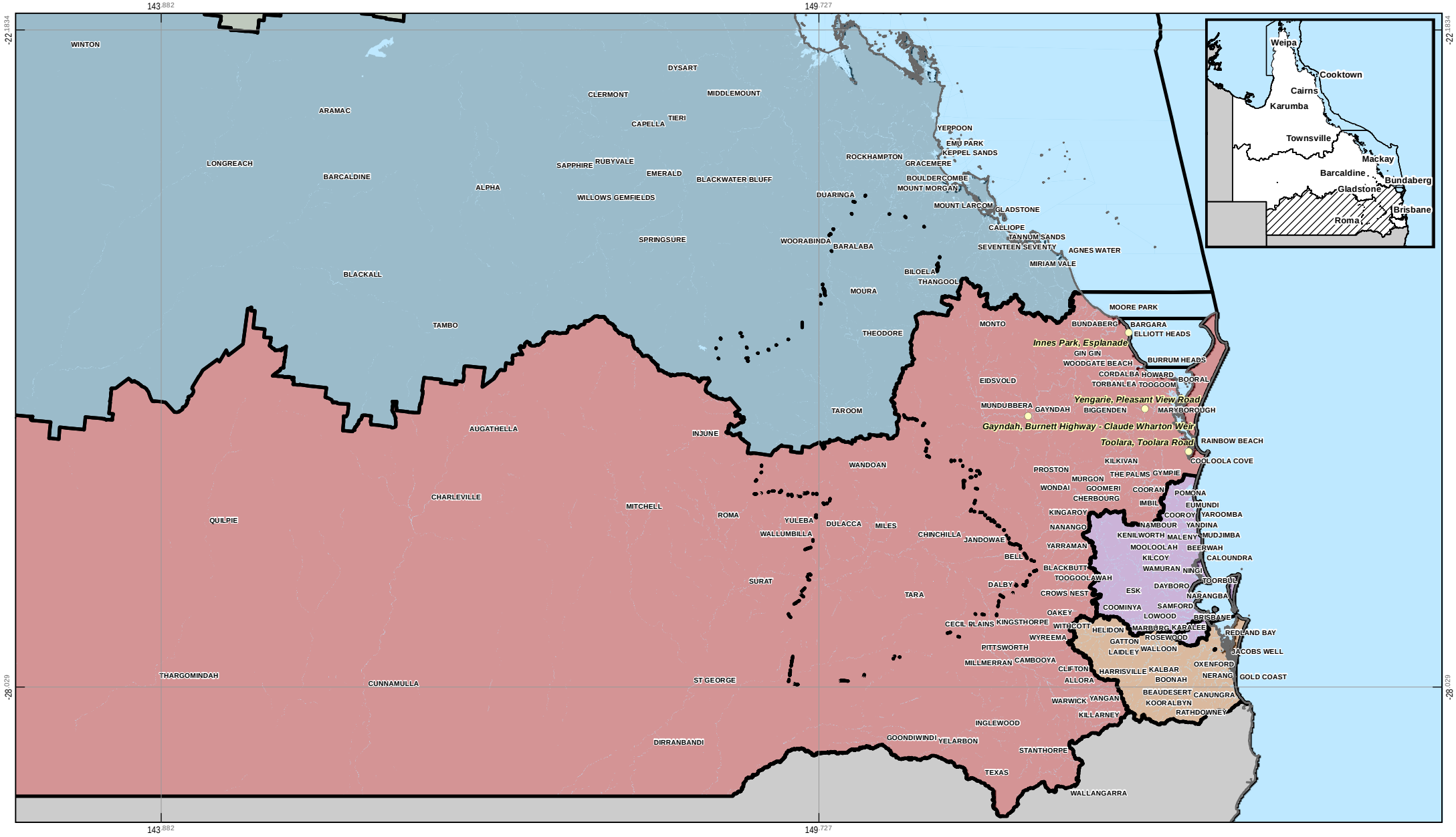
The sites identified as Priority 3 for implementation include both upgrading of facilities at existing locations and the construction of new facilities. The Priority 3 sites for this region are detailed in Table 38 and shown on Figure 20.

Table 38 Priority 3 sites

Asset number	Facility	Location	RBC	Full tide or part tide	Rationale
20052803	Boat ramp Toolara Toolara Road	North bank of Crab Creek	South Wide Bay *low-medium demand RBC*	Part tide	◗ Toolara boat ramp is a two lane boat ramp located in Tin Can Bay. ◗ The boat ramp is tide restricted and has adequate land based facilities including water, lighting, toilets facilities and a picnic area. ◗ Consultation feedback identified this boat ramp as sufficient in catering for the needs of users. ◗ As this boat ramp is located in a medium demand catchment, it has potential to be upgraded and expanded to cater for future demand. ◗ Potential works proposed for this boat ramp include an extension to boat ramp and expansion of the car park.
20052811	Boat ramp Claude Wharton Weir Gayndah	North bank of Burnett River off Burnett Highway	North Wide Bay *low demand RBC*	Full tide	◗ Claude Wharton Weir boat ramp is a one lane boat ramp located on the outskirts of Gayndah on the north bank of the Burnett River ◗ The boat ramp is supported by land base facilities including water, toilet and a picnic area. The site has minimal constraints and stakeholder feedback suggests a pontoon would well utilised at this location. ◗ As the primary boat ramp servicing the Gayndah community, it is proposed that a pontoon be constructed and the car park be upgraded in the long term to cater to future demand in this area.

Asset number	Facility	Location	RBC	Full tide or part tide	Rationale
N/A	Boat ramp Littabella Creek	Morts Lane, Yandaran	North Wide Bay *low demand RBC*	Part tide	◗ Littabella Creek was identified as a potential new site for a boat ramp by stakeholders as there is currently no formal access to this location. ◗ It is considered that a boat ramp in this location would service estuary fishing/sport fishing. ◗ A single (one) lane boat ramp would be suitable at this location as access to the creek at the end of Morts lane is limited. ◗ The site is currently privately owned and would need to be acquired for land based facilities. ◗ This site has been identified as a Priority 3 due to constructability and approval constraints. However, in the long term, it is envisaged that a boat ramp at this location will service estuary fisherman and provide formal access to Littabella Creek.
20055522	Boat ramp Gatakers Landing	Corfield Street/Esplanade	South Wide Bay *low-medium demand RBC*	Full tide	◗ Gatakers boat ramp is a two lane boat ramp located at the end of Corfield Street, Hervey Bay. ◗ This boat ramp has been identified by stakeholders as a user friendly boat ramp as it is an all tide, all weather facility. This boat ramp sufficiently caters for current demand. However, due to its location in a medium demand catchment and minimal constraints, there is opportunity for this boat ramp to be upgraded in the long term. ◗ The proposed works include an additional lane and an expansion of the car park. In addition, the channel would require dredging to improve water access.

Asset number	Facility	Location	RBC	Full tide or part tide	Rationale
20052813	Boat ramp Miara, Yandaran-Miara Road	North Bank of Kolan River near entrance	North Wide Bay *low demand RBC*	Full tide	◗ Miara boat ramp is a one lane boat ramp located near the mouth of the Kolan River. ◗ There is currently no land based facilities supporting this facility, and car parking is minimal. ◗ Issues raised through consultation identified the boat ramp as being slippery and dangerous with a lack of maintenance being undertaken at this boat ramp. It was highlighted that this facility requires consideration to the provision of a pontoon/floating walkway. ◗ It is considered that upgrades including a floating/walkway pontoon and an expansion to the car park are required to improve safety and cater for an increase in recreational boating users in the area.



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0 25 50 100 150 200

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

Recreational Boating Facilities Demand Forecasting Study

Job Number 41-22459
Revision A
Date 29 AUG 2011

Southern Region Priority 3 Sites

Figure 20

G:\41\22459\GIS\Maps\MXD\Low Priority Sites\41_22459_01_Low_Priority_Southern.mxd

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 upgrading of facilities at existing locations. The Priority 4 sites for this region are detailed in Table 39.

Table 39 Priority 4 sites

Asset Number	Site	Location	RBC	Rationale
20052812	Boat ramp Winfield Road Baffle Creek	South Bank of Baffle Creek	North Wide Bay *low demand RBC*	Potential for installation of a pontoon to improve useability of the boat ramp
20052851	Boat ramp Condamine River Caliguel Lagoons	Caliguel Lagoons	Darling Downs *medium demand RBC*	Regular maintenance is required and stakeholders identified this boat ramp as having potential for a pontoon
20052809	Boat ramp Chinchilla Weir wall	Adjacent to Weir Wall	Darling Downs *medium demand RBC*	Potential for installation of a pontoon to improve useability of the boat ramp
N/A	Boat ramp Dirranbandi	Balonne	South Central *low demand RBC*	Some safety concerns associated with water access because of the lack of a formal facility. This location would benefit from a formalised, sealed boat ramp.
20052847	Boat ramp Ward River	20km southwest of Charleville	South Central *low demand RBC*	Work needs to be done to upgrade the access road and the car park. Stakeholders also identified the need for routine maintenance to be undertaken.

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 or expansion. The boat ramps located on dams in the region are predominantly owned and/or managed by SunWater, 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, particularly in the South Wide Bay and Darling downs RBCs.

Table 40 identifies the boat ramps on dams that have potential for upgrade/expansion. It is recommended that TMR coordinate with SunWater to establish the needs for the region and establish upgrading opportunities to meet future demand.

Table 40 Upgrading opportunities – Dams

Boat ramp	Location	RBC	Opportunities
Boat ramp Monduran Dam Gin Gin	16km north of Gin Gin on Kolan River	North Wide Bay *low demand RBC*	The Monduran Dam boat ramp is a single lane dam owned by SunWater, with TMR being responsible for its maintenance. Stakeholders identified this boat ramp as a popular freshwater facility. As demand increases, this site has the potential to be upgraded to include an additional lane.
Boat ramp Lenthalls Dam Maryborough	Lenthalls Dam Maryborough	South Wide Bay *low-medium demand RBC*	The Lenthalls Dam boat ramp is a single lane boat ramp located approximately 30 kilometres north west of Maryborough. The dam is a popular fishing spot with a picnic area. It is located in a medium demand catchment and has the potential to be upgraded to include an additional lane.
Boat ramp Leslie Dam	Leslie Dam	Darling Downs *medium demand RBC*	The Leslie Dam boat ramps are single lane boat ramps (high level, medium level and low level) servicing the Darling Downs catchment. Stakeholders have expressed dissatisfaction with the existing facilities and suggest that another

Boat ramp	Location	RBC	Opportunities
			lane be built to launch boats when the dam is 30 percent or less. There is current and future demand predicted for boat ramp lanes in the Darling Downs RBC the provision of additional lanes at this facility should be considered.

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 41 identifies the boat ramps in the Southern Region that have identified for possible decommissioning.

Table 41 Potential decommissioning

Boat ramp	Location	RBC	Comments
Boat ramp Bundaberg Queen street upstream	North Bank of Burnett River - upstream	North Wide Bay *low demand RBC*	Limited usage and ongoing maintenance. Downstream boat ramp is four lanes and in a good condition and provides sufficient access to the Burnett River. The upstream boat ramp is not required.
Boat ramp Burnett Heads Esplanade	Burnett River - upstream of Boat Harbour	North Wide Bay *low demand RBC*	Limited usage and ongoing maintenance is not feasible. Burnett Heads boat harbour sufficiently caters for demand in this area.
Boat ramp Kirar Weir (formerly Eidsvold Weir)	Upstream of Eidsvold Weir on the Burnett River	North Wide Bay *low demand RBC*	Limited usage.
Boat ramp Woodgate First Ave	Northern end of Woodgate - Hervey Bay	South Wide Bay *low-medium demand RBC*	Difficult to launch at this boat ramp as it is severely affected by waves and weather. The boat ramp is a liability for new users as it is not as safe as

Boat ramp	Location	RBC	Comments
			other boat ramps in the area. Further investigation is required as to the feasibility of retaining this facility.
Boat ramp Point Vernon Corfield St	Gatakers Bay - Western side of Point Vernon	South Wide Bay *low-medium demand RBC*	This boat ramp is exposed to weather and is badly affected by erosion. Due to the recent upgrades to Gatakers Landing boat ramp, it is recommended that this boat ramp be decommissioned.
Boat ramp Wols Camp Howard	Burrum River Pacific Haven Circuit Howard	South Wide Bay *low-medium demand RBC*	The boat ramp is in poor condition. There are three boat ramps servicing the Howard area, with two boat ramps undergoing recent upgrades. Further investigation is required as to the feasibility of retaining this facility.

7.10.3 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 and lighting.

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:

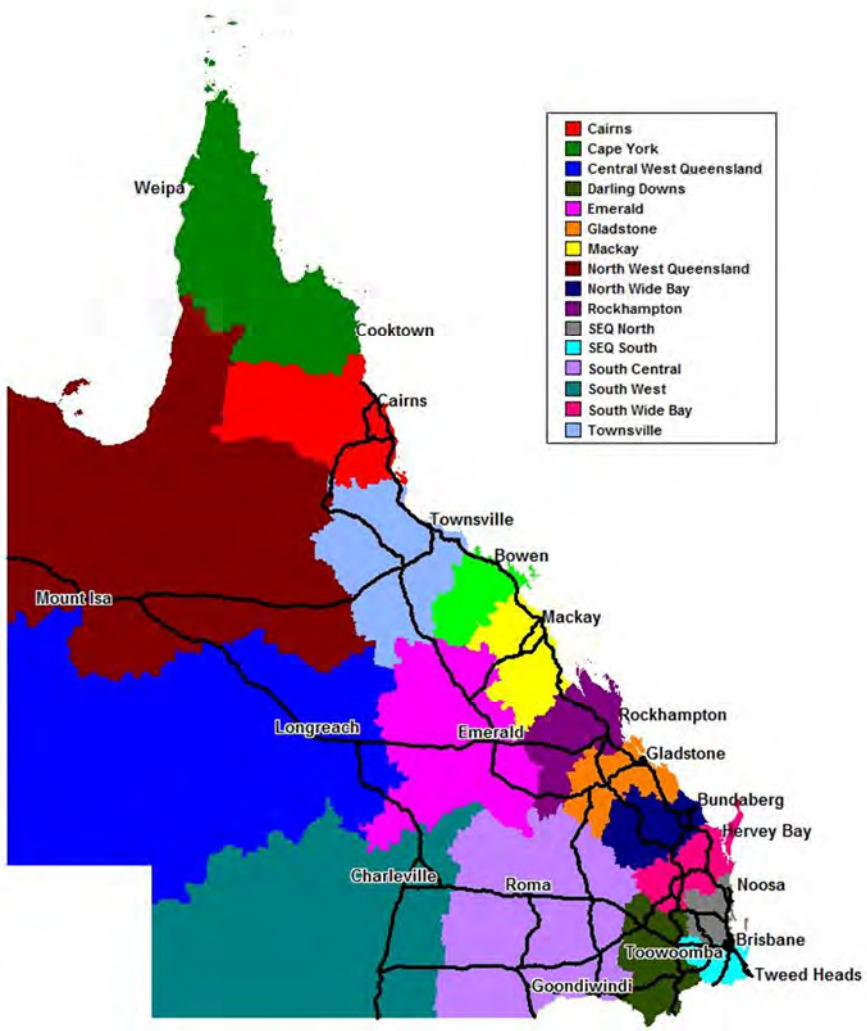
- *Cape York* – Aurukun, Cook and Torres LGAs;
- *North West QLD* – Burke, Carpentaria, Cloncurry, Croydon, McKinlay, Mount Isa, Richmond, Mornington, Etheridge and Flinders LGAs;
- *Cairns* – Atherton, Cairns, Cardwell, Douglas, Eacham, Herberton, Johnstone and Mareeba LGAs;
- *Townsville* – Burdekin, 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:

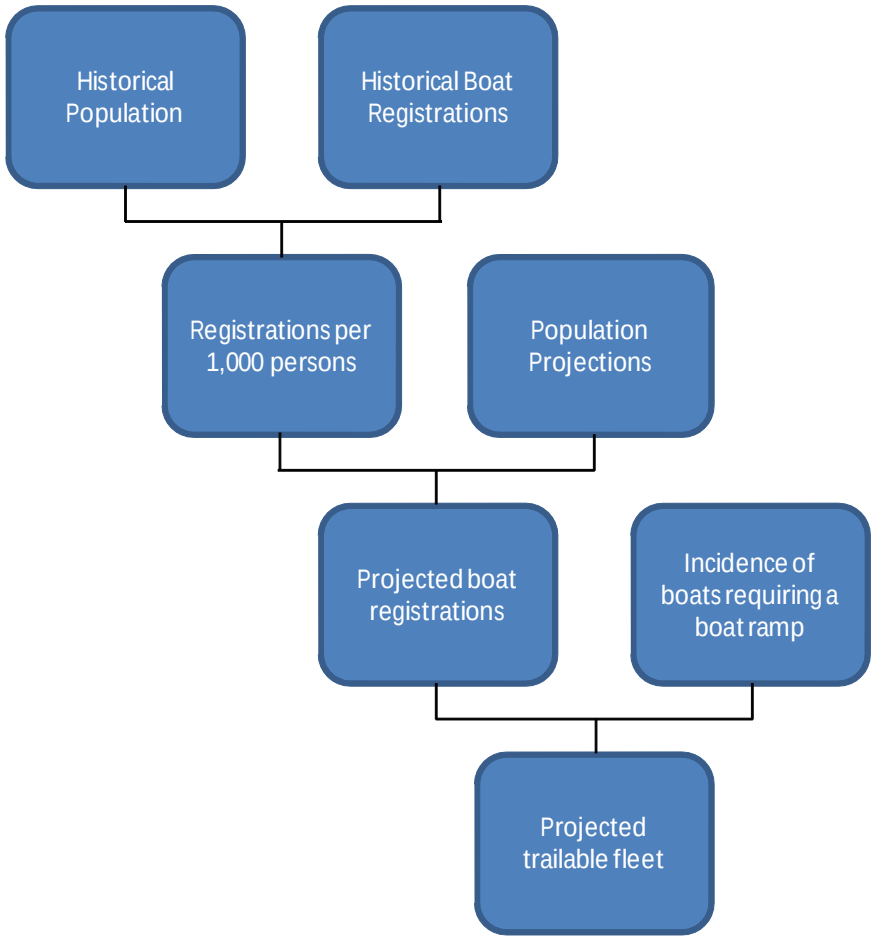
- *Base case scenario* – The base case scenario assumes that the incidence of boat ownership per 1,000 persons remains at the average level recorded between 2005 and 2009. The incidence of boat ownership is also kept constant throughout the projection period; and
- *Increasing incidence of boat ownership 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

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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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Department of Environment and Resource Management Property Boundaries and Tenure (DCDB) 2010 Water bodies 2007 World Heritage Register 2008	While every care is taken to ensure the accuracy of this product, the Department of Environment and Resource Management (DERM) 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 through the Department of Environment and Resource Management 2008. © The State of Queensland. Department of Environment and Resource Management (DERM) 2010.
Queensland Department of Primary Industries and Fisheries Queensland Coastal Wetland Vegetation 2006 Fish Habitat Area 2008 Dugong Protection Areas 2007	Use of the spatial data is by courtesy of the State of Queensland, Australia through the Department of Primary Industries and Fisheries	© Queensland Department of Primary Industries and Fisheries 2010
Department of Natural Resources & Water (NRW) and the Bureau of Rural Sciences (BRS) Zoning (QLUMP) 1999	While every care is taken to ensure the accuracy of this product, the Department of Natural Resources and Mines 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.	© The State of Queensland, Department of Natural Resources and Mines, 2005.
Department of Mines and	The State of Queensland asserts the right to be recognised as author of this material and the right to have	© The State of Queensland (Department of Employment,

Energy Key Resource Area 2007	its material unaltered.	Economic Development and Innovation) 2009.
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Australian Bureau of Statistics – ASGC Australian State Boundaries 2009 Queensland Local Government, Regional, Council Boundaries 2009	Information regarding the underlying concepts of the Australian Standard Geographical Classification and its Structures may be found in the ABS publication Australian Standard Geographical Classification (ASGC) 2009 (cat. no. 1216.0). A publication is produced for each edition of the ASGC and the publication for the ASGC Edition 2009 will be available from 16 September 2009.	© Commonwealth of Australia administered by the ABS, 2009.
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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
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1	C Boon E Dwyer T Hooper	T Hooper		J Honey		Feb 2011

2	C Boon T Hooper	T Hooper		J Honey		June 2011
3	C Boon	J Honey		J Honey		Aug 2011
4	C Boon	J Honey		J Honey		Sept 2011