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SUMMARY REPORT

Socio-economic uses and economic value study of the Gold Coast Waterways

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- GCWA Board Chair Mara Bun and GCWA CEO Hal Morris
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Executive Summary

The Gold Coast Waterways Authority (GCWA) is a Queensland Government statutory body established in 2012. Its role is to strategically plan for, facilitate and manage the development and use of the Gold Coast waterways. This includes inland waterways such as rivers, canals, lakes and dams within the City of Gold Coast local government area as well as the areas at the mouth of the Nerang River, Currumbin Creek and Tallebudgera Creek. GCWA's area of responsibility extends from south of the Logan River to the New South Wales border.

The importance of Gold Coast waterways to the lifestyle of Gold Coast residents is broadly understood by the community and decision makers, but the economic and social values are not well documented. GCWA commissioned Natural Capital Economics (NCE) in October 2016 to undertake a study on the "*Socio-economic Uses and Economic Value of Gold Coast Waterways*". The purpose of this study is to use existing and newly sourced data to determine a baseline for social-economic and economic value of the waterways that can be used as a credible source to assist GCWA in decision making, business case development and investment.

In relation to the social dimension of the study, a survey of Gold Coast residents undertaken for this project revealed significant appreciation of waterways values and support for enhanced management of waterways. Approximately 91% of respondents either agreed or strongly agreed that waterways are a significant reason why they chose to live on the Gold Coast, and 96% agreed or strongly agreed that waterways contribute to their personal health and wellbeing. Analysis of the qualitative survey data indicated that the social values residents placed on Gold Coast waterway were often associated with the need to protect and enhance the natural aspects of the waterways. This was supported by the finding that 86% of survey respondents believe that more should be done to protect and enhance the natural aspects of waterways such as cleanliness of water, healthy riparian vegetation and protection of wildlife. Furthermore, the majority of respondents (66%) support more resources being used for waterway management, even if that meant a very small increase in their property rates or rent.

Waterway access, safety and condition were also important factors with over 80% of respondents agreeing that if these declined they would reduce the frequency of their visitation, and over 50% agreeing that they would consider moving away from the Gold Coast if these attributes were not maintained.

The recreational use and value of waterways were also examined. Building on the work of a Healthy Waterways study (now *Healthy Land and Water*), it was estimated that up to 31 million recreational activities are undertaken adjacent to, on, or in Gold Coast waterways each year, attracting visitors from all over South East Queensland, and contributing to the local economy. This does not include recreation undertaken by interstate and international visitors that are counted as part of the tourism contribution to the economy.

Furthermore, consultation and surveying of the waterways-based tourism and marina sectors found safe and accessible waterways in good environmental condition were fundamental to driving consumer demand and facilitating business operations. Both of these sectors derive significant degrees of economic activity directly and indirectly from the waterways.

Economic research and modelling undertaken for this project found that the contribution of waterways to the regional economy is significant; specifically:

- Waterways underpin significant economic activity, with an estimated contribution to regional Gross Regional Product (GRP) of around \$440 million (medium estimate).
- Including flow-on impacts, the contribution is around \$770 million (medium estimate).

The contribution of waterways to regional employment is also significant, specifically:

- The economic activity attributable to waterway use is also a significant job creator, particularly recreational expenditure that is concentrated on retail trade.
- Total direct jobs attributable to economic activity are around 4,000 (medium estimate) & over 6,000 jobs including flow-on impacts.

Waterways are also major providers of ecosystem services to the community, visitors and the businesses that fully or partially rely on waterways to underpin their business model. Key findings from research and economic modelling include:

- The estimated value of ecosystem services attributable to the waterways is around \$670 million per annum. This is dominated by recreational use by locals that is not normally counted within any typical economic measure of the regional economy. In addition, research and surveys revealed that some tourism and marina businesses would relocate to other regions if the waterways were seriously and permanently degraded (either lack of safe access through waterways, or significant declines in water quality).
- We have also capitalised these annual values using population and industry growth forecasts to establish a proxy natural capital value for the waterways. While this estimate should be treated with some caution due to limitations on data quality, we estimate that the natural capital value of the waterways is around \$26 billion.

Given the population-induced and climate change risks faced by the Gold Coast's waterways, the study highlights the current levels of investment in waterway management is not commensurate with the contribution of waterways to the local economy, or their broader socio-economic value.

The bottom line is that waterways are a very important economic and social asset that assists in underpinning the Gold Coast's phenomenal success as a world class destination for tourism and regional growth more broadly. There is a strong economic and social case for enhanced management. This is also supported strongly by the community and waterway-reliant businesses alike.

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1 Background

Gold Coast Waterways Authority (GCWA) is a Queensland Government statutory body established in 2012 under the *Gold Coast Waterways Authority Act 2012*. Its role is to strategically plan for, facilitate and manage the development and use of the Gold Coast waterways. GCWA’s 10-year ‘Gold Coast Waterways Management Strategy (2014 – 2023)’ vision states:

“A waterways network (and relevant facilities and reserves) that is sustainably managed to reflect and support an appropriate balance between the recreational, tourism, environmental, economic development and commercial aspirations and objectives of the Gold Coast community and visitors. We want to shine a spotlight on the waterways so that they become something that residents of the Gold Coast can use, understand, protect, respect, enhance and enjoy as much as the City’s beaches.”

GCWA has responsibility for inland waterways including rivers, canals, lakes and dams within the City of Gold Coast local government area as well as the areas at the mouth of the Nerang River, Currumbin Creek and Tallebudgera Creek. GCWA’s area of responsibility extends from south of the Logan River to the New South Wales border. A map of GCWA’s area of responsibility is shown below.

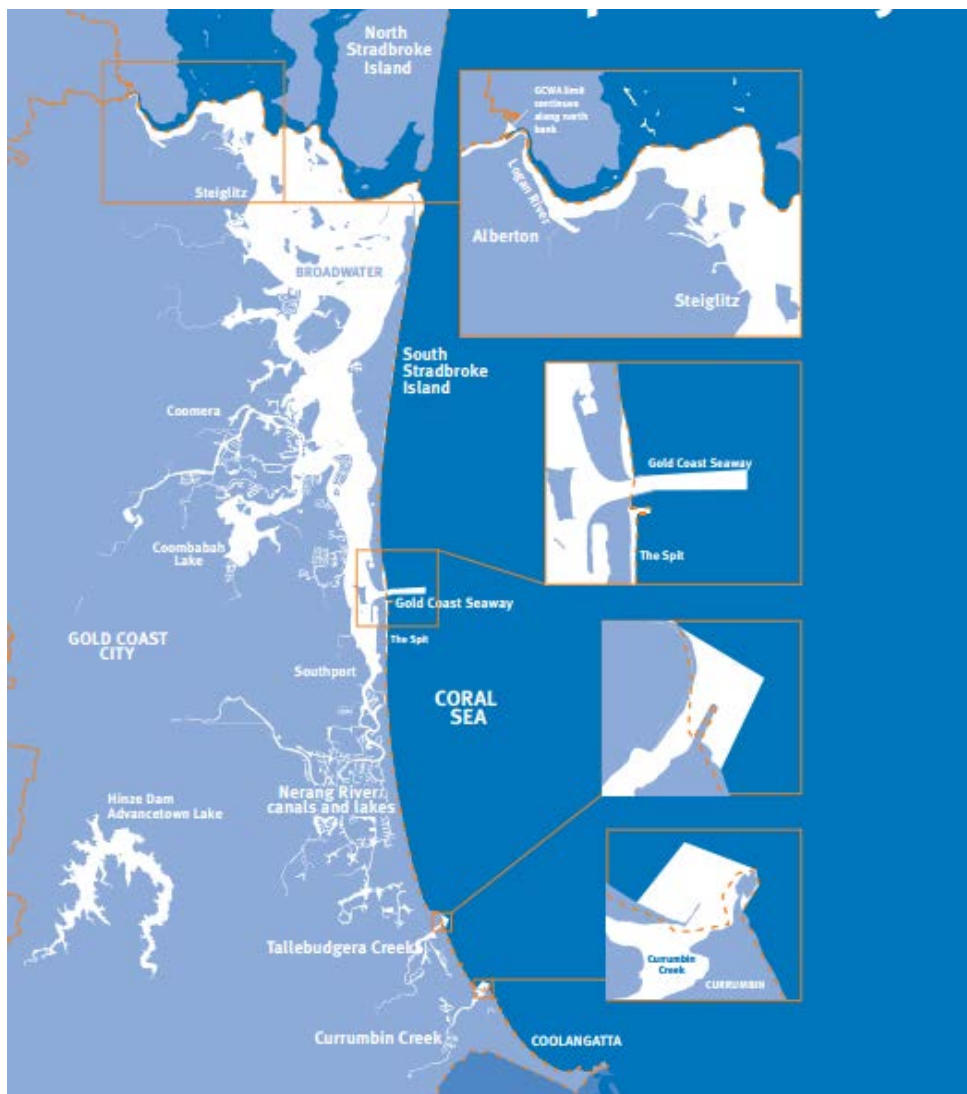


Figure 1. Regional map of GCWA’s areas of responsibility (Source: GWCA)

Waterways provide significant social, cultural, economic and environmental benefits and services for Gold Coast communities. Recreational uses like sailing, boating, fishing, swimming, canoeing and water-skiing occur across the waterways and, together with established tourism and water-based commercial enterprises, make a significant contribution to the local economy. Extensive infrastructure exists, and/or is planned, to support these uses and there has been considerable, previous ‘redesign’ of waterways (such as the Gold Coast Seaway) to provide safe navigational access, flood mitigation and social and economic uses (such as canal estates, navigation channels and reclamation for development).

1.1 Pressures On Waterways

The Gold Coast waterways are under significant pressure from population growth and associated impacts and broader environmental risks, particularly those associated with climate change.

The Queensland Government Statisticians Office estimate that the population of the Gold Coast is around 560,000, with an expectation that the population will grow to between 790,000 to 950,000 by 2036. The current number of households is estimated at around 240,000, increasing to between 340,000 and 390,000 over the same period. This growth will create a number of significant risks to waterways including:

- Increased pollution loads, particularly from urban stormwater runoff and discharges from wastewater treatment plants.
- Increased usage of waterways and increasing congestion that will potentially reduce recreational amenity if the problems are not managed.

The figure below shows projected growth in population and dwellings over the next 20 years.

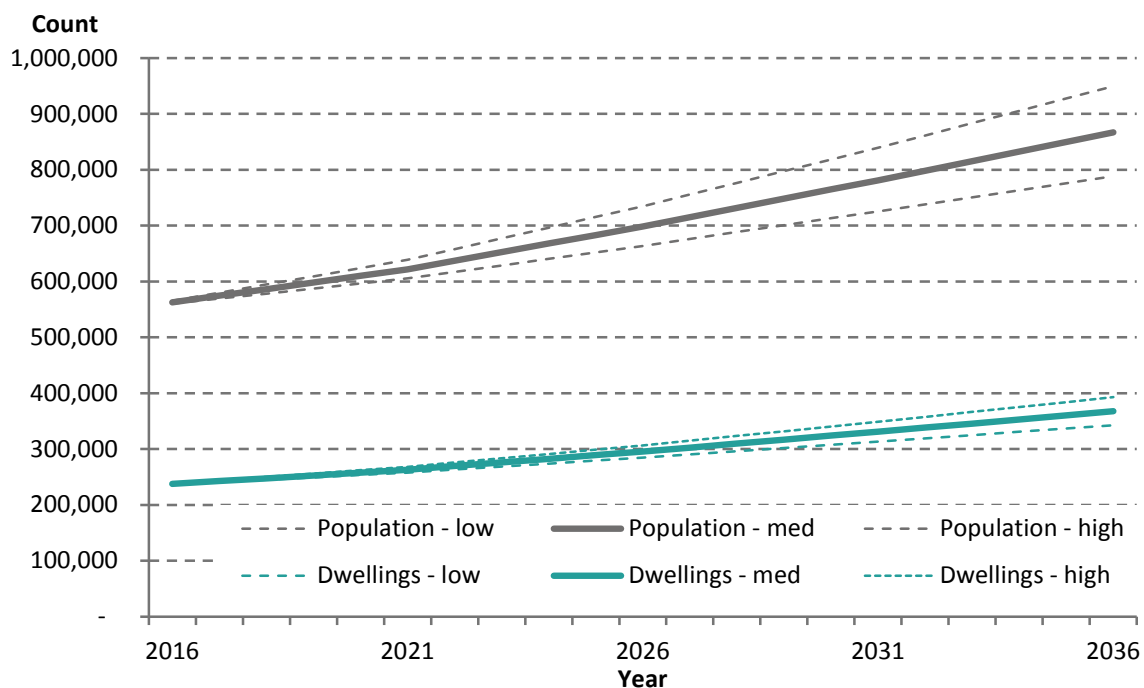


Figure 2. Projected growth in population and households

The Gold Coast is also an iconic destination for international and domestic tourists. Currently the Gold Coast hosts around 13 million visitors a year that spend over 23 million nights on the Coast. The Tourism Forecast Council expect tourism visitor nights to grow at around 3.5% per annum for the next 10 years. This growth presents both challenges and opportunities for waterway-based tourism, particularly ensuring the quality of waterway experiences are maintained to facilitate future sustainable growth of the sector.

Furthermore, climate change that will create additional risks in terms of sea level rises and more frequent flooding from both storm surge and terrestrial flooding similar to that experienced after Cyclone Debbie in April 2017.

1.2 Purpose Of This Report

The importance of Gold Coast waterways to the lifestyle of Gold Coast residents is broadly understood by the community and decision makers, but the economic and social values are not well documented. GCWA commissioned Natural Capital Economics to undertake a study on the socio-economic uses and economic value study of the Gold Coast waterways. The purpose of this study is to establish key credible social and economic information required to assist GCWA with decision making, business case development and investment. Key questions addressed in this report include:

- What are the key uses and social values of waterways?
- What is the direct and total contribution of waterways to the regional economy?
- What is the annual economic value? This includes market and non-market value.
- What might the natural capital value of waterways be?
- What insights for management can be derived from the analysis?

A better appreciation of the socio-economic uses and economic value of the Gold Coast waterways is expected to have a number of benefits for management, including:

- A stronger evidence base upon which to inform investment decisions and funding proposals.
- Clearer understanding of the uses and value of Gold Coast waterways as distinct from beaches.
- Greater confidence that strategic priorities are reflecting community and industry views.
- Improved ability to contribute meaningfully to public debates about the value of waterways.

2 Framework And Approach

The approach to this analysis draws on contemporary approaches in economic analysis that explicitly recognise the fact that natural assets such as waterways do have an economic value and that their use does underpin economic activity that contributes to the measured economy (i.e. measures such as Gross Regional Product, or GRP).

The broad framework is based on the concepts of natural capital and environmental economic accounting advanced by the World Bank and United Nations, where:

- Waterways are natural capital, a specific type of asset that was not explicitly created by people.
- Waterways, often in conjunction with built capital, provide goods and services that are valuable to the community and businesses. The value of these ecosystem services will depend in the extent, condition and utilisation of waterways.
- Use of waterways (direct and indirect) will have an impact on the condition of waterways, and subsequently the future stream of ecosystem services that can be derived from waterways.

The use of this framework enables the economic and social assessment of the Gold Coast's waterways using similar approaches and tools that would typically be used to assess any built capital (such boat ramps). This framework is shown in the figure below.

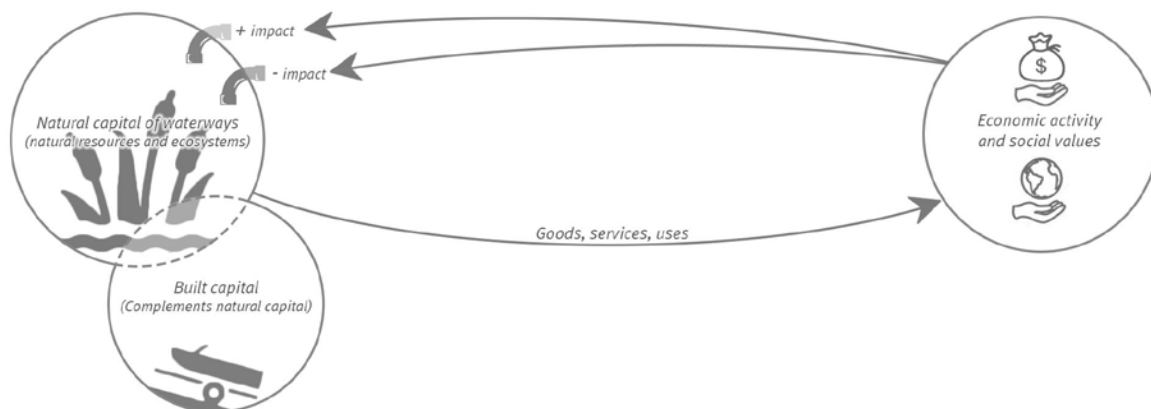


Figure 3. Waterways as natural capital

The project was undertaken from October 2016 to August 2017 and used a mixed methods approach:

- An initial assessment of physical waterway asset data (extent & condition) as the basis for establishing economic and social values.
- Review of previous research and surveys (assets, activities, values).
- Consultation – this process began with a series of meetings with priority industry informants. These meetings took the form of a semi-structured interview and were aimed at filling identified information gaps and exploring opportunities and leads in relation to the subsequent surveys and case studies. Refer to Appendix 7 for details of those consulted. In addition, interviews were undertaken with three case study subjects to capture personal stories and other qualitative material, including photographs, to complement the study's quantitative findings. The intention of these case studies is to personalise the contribution waterways make to community wellbeing and sense of place for residents, as well as the quality of the visitor experience.

- Surveys to fill quantitative gaps. Three separate surveys were conducted. A public survey, focusing on social and recreational values. A survey of tourism operators focusing on economic data and the reliance on waterways to underpin business. A survey of business operators in marinas focusing on economic data and the reliance on waterways to underpin business.
- Statistical and economic analysis:
 - Statistical and GIS analyses of data from previous relevant surveys, particularly the annual social survey conducted for the Healthy Waterways (now Healthy Land and Water) report card.
 - Contribution to the region’s economy (Gross Regional Product). Specific models using the income approach for calculating the contribution to regional income were applied. Inputs to the economic models were sourced from surveys undertaken specifically for this report, industry data, the Australian Bureau of Statistics (ABS) and previous academic and consulting research.
 - Economic values of ecosystem services and natural capital (market & non-market values). This was primarily a modelling exercise based on previous research and projects, including previous primary data collection projects undertaken by the consulting team.
- Reporting and socialisation of findings. This included this report, presentations to GCWA Board and stakeholders, and a presentation at a public forum held on 22 May 2017.

An overview of the approach taken to the study is shown in Figure 4.

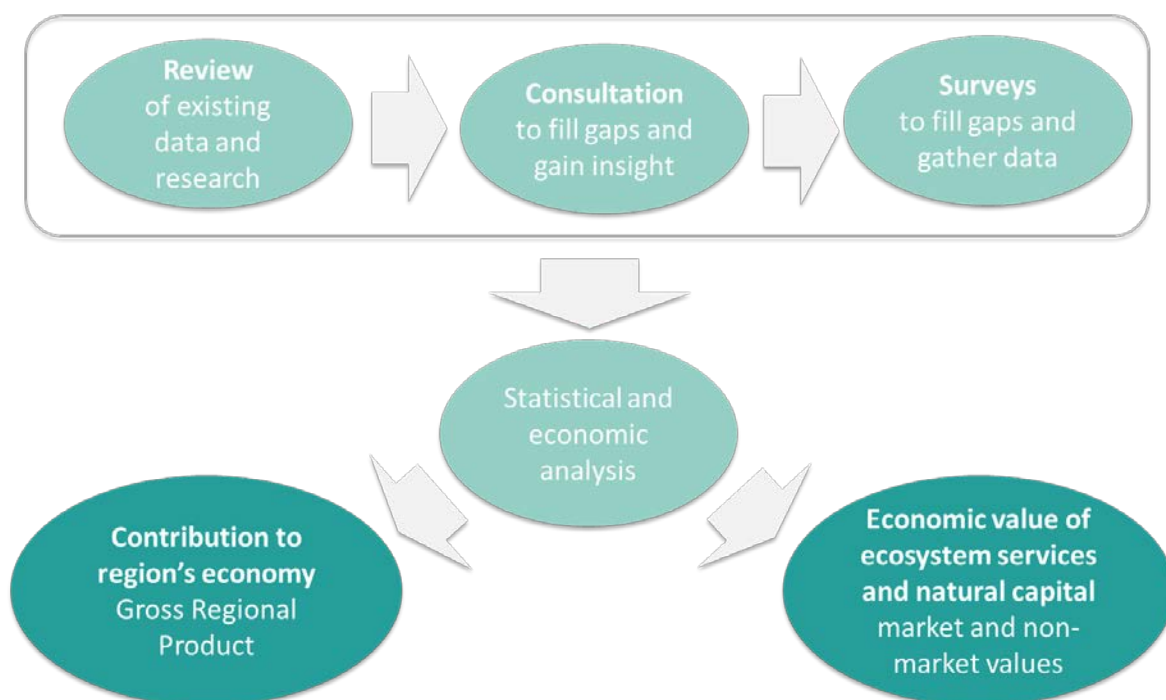


Figure 4. Overview of the study approach

3 Social Values

Social values were identified and explored by means of a literature review, statistical analysis of previous survey and demographic data, and through consultation with key informants and stakeholders. In addition, a major component of this study included a specific online survey of Gold Coast residents during March and April 2017 to complement and add further insights to previous surveys. There were approximately 290 respondents (error margin of 6.2% at 95% confidence interval) to the survey, and respondents broadly matched community make-up (household type, property distance from waterways etc.), but the gender of respondents for this survey was slightly skewed towards males. However, analysis of responses indicates that gender did not materially impact on survey responses (i.e. responses from males were not materially different from responses from females).¹ For full results of the online survey see Attachment B, Appendices 2-4.

3.1 The Importance Of Waterways To A Sense Of Place And Wellbeing

The results of the online survey of Gold Coast Residents are presented in Figure 5 and Figure 6 below. Figure 5 reveals that residents place considerable value on the waterways with 91% of respondents either agreeing or strongly agreeing that waterways are a significant reason why they chose to live on the Gold Coast, and 96% either agreeing or strongly agreeing that waterways contribute to their personal health and wellbeing (e.g. fitness, relaxation, happiness, lifestyle, sense of place). In addition, it was clear that waterway access safety and condition are important attributes.

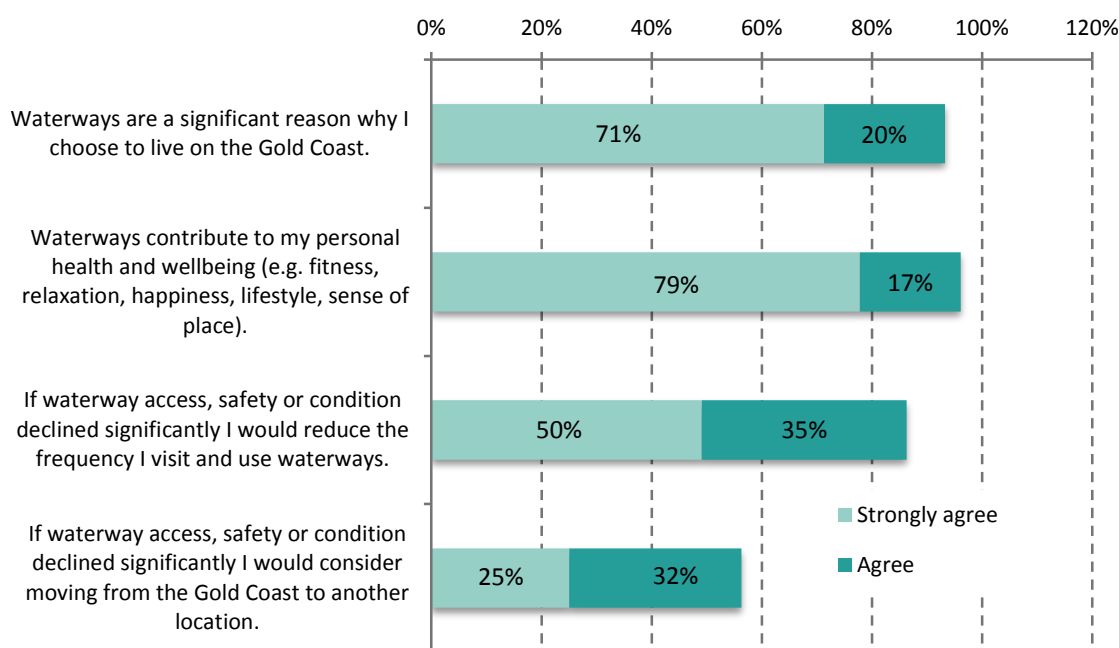


Figure 5. The social importance of waterways to Gold Coast residents

The survey indicates strong response and Figure 6 indicates strong support from residents (74%) for doing more to enhance access to waterways and to reduce congestion in high-use areas. Respondents also agreed (87%) that more should be done to protect and enhance the natural aspects of waterways such as cleanliness of water, healthy riparian vegetation and protection of wildlife. Furthermore, the majority of respondents

¹ Ideally a larger number of responses would have been obtained. However, the use of major survey panels was not possible within the resources and timing of this project. For this reason, this research deliberately provides a range of values in the estimates reflecting the underlying confidence intervals from the surveys.

(66%) support more resources being used for waterway management, even if that meant a very small increase in their property rates or rent.

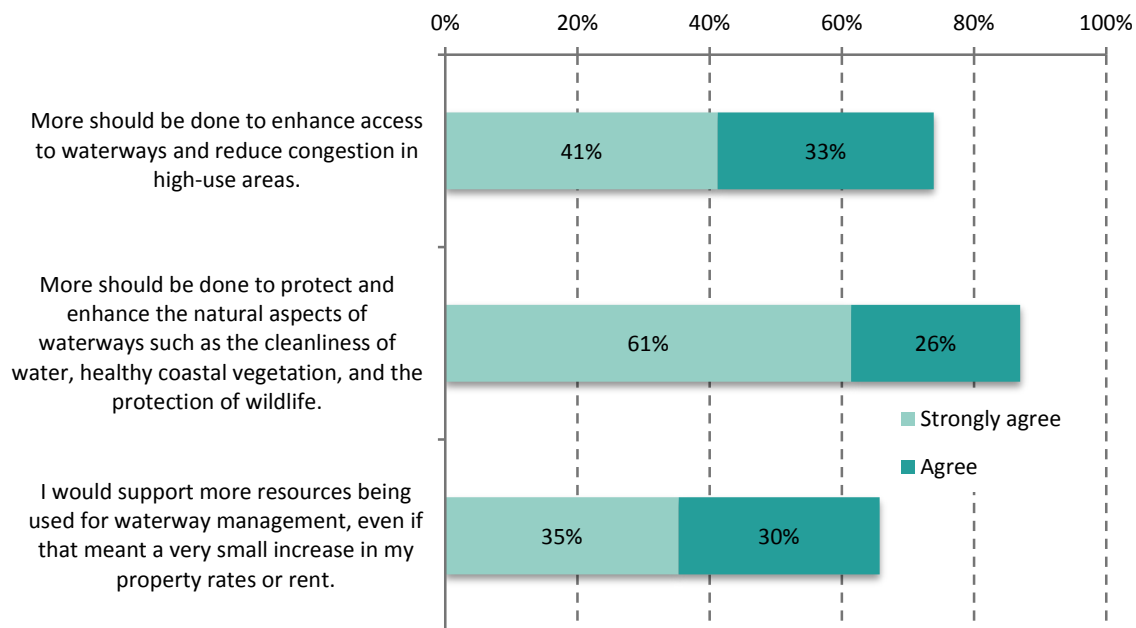


Figure 6. Preferences for enhanced management

Several survey questions were left open for comment. Some particularly insightful comments about value of Gold Coast waterways to locals are as follows (for full list of responses see Appendix 4). Notably, many have associated their perceived value of the waterways with a need to protect and preserve:

“Increase the tourists but spend more on saving nature because that what makes Gold Coast “gold”

“They are actually #1 asset for city to exist and thrive, should be managed as such”

“The waterways are what make the Gold Coast. We need to protect and preserve them so everyone can enjoy them”

“Our most valuable asset. Needs to be looked after for everyone to enjoy”

“Best place in the world to live and work. The waterways are a major component of that amazing natural attraction”

“The waterways are an essential component of the Gold Coast & must be conserved”

“The natural waterways are a great asset to the coast. As much as possible should've done to protect them”

“The waterways make the Gold Coast a special and beautiful place”

“Our waterways are priceless. Everything must be taken to preserve and improve their condition from an ecological, economic, tourist and most importantly local [perspective]...”

“They are our best natural attraction. Preserve and beautify them...”

Further consultation with key community group informants indicated that there are approximately 50 community groups active in the waterway care network within the Gold Coast catchment. The range of

activities undertaken by these groups includes community-based monitoring programs, research, on-ground maintenance and rehabilitation, and engagement in community capacity building and input to policy and planning initiatives. In addition, the waterways provide a location for the activities coordinated by hundreds of recreational community groups that use the waterways for primary (e.g. swimming), secondary (e.g. stand up paddling) and tertiary (e.g. picnicking) recreational uses. (Naomi Edwards, pers. comms. 2nd February, 2017)

Case study profile: Bob Westerman

This is Bob Westerman. Bob knows something pretty impressive about the value of Gold Coast waterways that very few others do. It relates to a group of visitors that have been flocking here longer than any other and from just about as far away as you can come.

Those visitors are waterbirds. They prefer to keep a low profile, that's why not many people know about them. But Bob is onto them.

There is one in particular called the Bar-tailed Godwit. Funny name, incredible story. This bird flies non-stop from the Arctic for 10 days to get here. It travels 10,000 km along an ancient flight path. This is the longest migration of any creature in the world. These godwits stay up to eight months of the year on the Gold Coast, hanging out and feeding, before heading back north again to breed.

One of the most important havens for the godwit is Curlew Island.

For Bob, special places of natural beauty like Curlew Island, provide an important contrast to the built up environment which surrounds it:

“It is a place where people are able to enjoy peace as opposed to the hustle, bustle and the traffic found on the mainland.”

Along with the Bar-tailed Godwit, the island hosts populations of many other species including sandpipers, plovers, whimbrels, stilts, terns and oystercatchers. One of the most of significant birds that inhabit the island is Eastern Curlew. The Eastern Curlew is the largest of all the world's shorebirds and is listed as critically endangered under the EPBC Act.

Bob is concerned about the future for these special birds. According to him, Curlew Island is the most important waterbird roost of the Broadwater. Yet, there are no protections in place.

Refer to Appendix 5 for the full version of the above case study.



Figure 7. Bob Westerman on Curlew Island, a haven for waterbirds who travel to the Gold Coast from up to 10,000

3.2 Recreational Use And Value

Recreational use and value of Gold Coast waterways were examined to determine the distribution of waterway use activities, distances travelled by visiting recreational users, and how visiting recreational users contribute to the local economy. This provides context for section 3.3 that calculates the total economic contribution of recreational expenditure.

Based on major surveys undertaken by Healthy Waterways, it is estimated up to 31 million recreational activities are undertaken adjacent to, on, or in Gold Coast waterways each year.² Of these:

- 55% is tertiary use (e.g. picnics, walking, running).
- 30% is secondary use (e.g. boating).
- 15% is primary use (e.g. swimming / diving).

The distribution of activities across major classes based on the Healthy Waterways Survey is shown below.

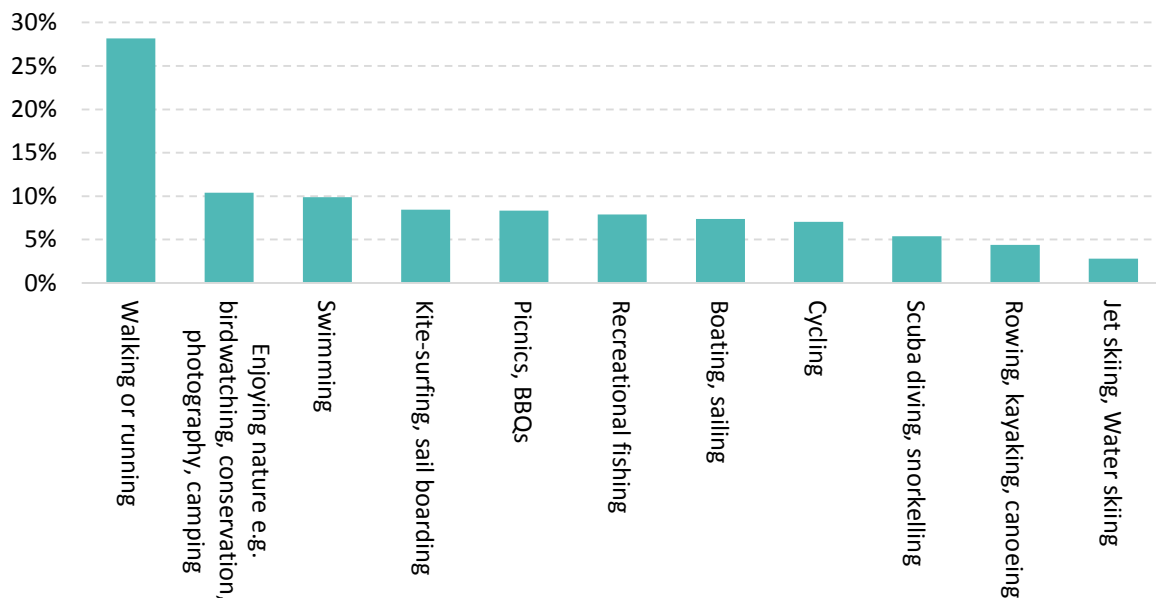


Figure 8. Visits by Recreational Activity

Gold Coast waterways attract visitors from all over South East Queensland (10% of all visits are from residents outside the Gold Coast). It can be assumed that the value of each visit is at least equivalent to the cost of getting there, and that visitors will spend money in the local economy on fuel, food etc. Figure 9 gives examples of average travel costs for recreational visitors based on total vehicle operating costs obtained from the Australian Taxation Office.

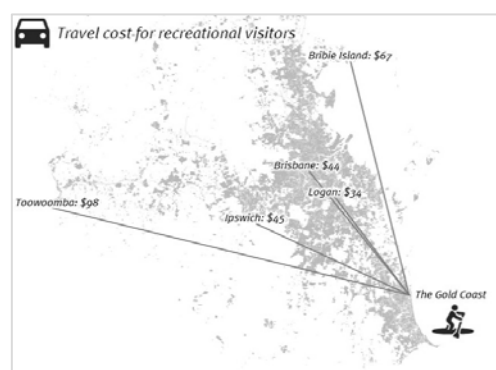


Figure 9. Travel Cost for Recreational Visitors

² Johnstone, K, and Beatson, A (2015) Social Science research Final Report, prepared for HWL. To undertake this analysis we obtained the raw survey response data for all respondents with a Gold Coast post code (approximately 550 respondents).

By analysing the Healthy Waterways survey responses, particularly questions relating to respondents' distances to waterways where they recreate and the frequency of recreation, it was also found that there is a relationship between distance and visit frequency (Figure 10). Households that live closer to waterways tend to visit them more frequently, and those that live further away visit less frequently.

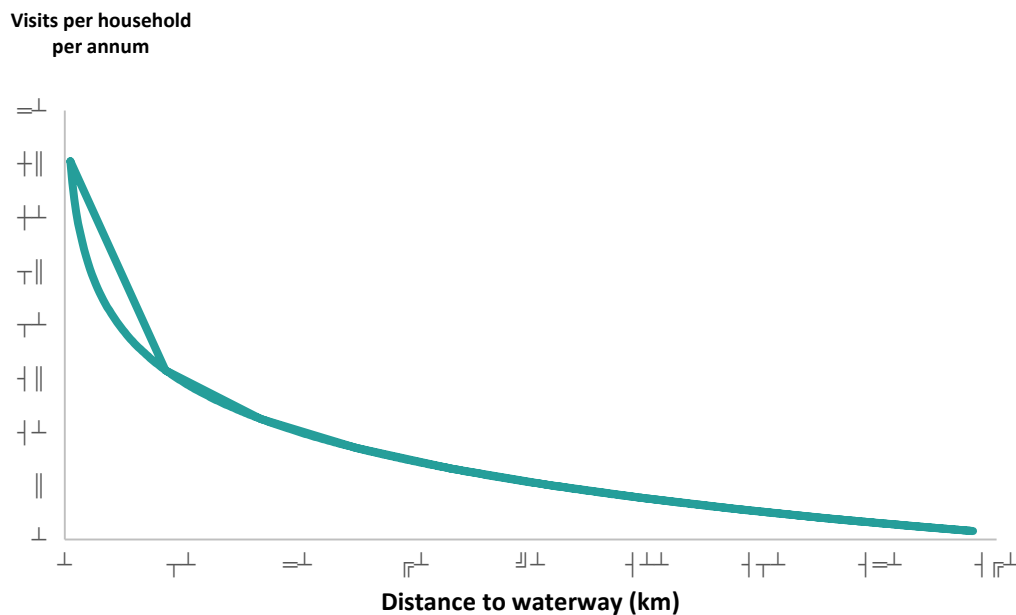


Figure 10. Travel Distance and Annual Average Recreational Use Frequency

3.3 Economic Contribution Of Recreational Expenditure

The analysis reveals the significant importance of recreational activity-based expenditure on the regional economy. The mid-point estimate of the contribution to Gross Regional Product is \$125 million, and including flow-on impacts, the total economic contribution is around \$200 million. Direct jobs attributable to the expenditure are around 2,300, and around 3,600 including the flow on impacts.

The logic behind these estimates is as follows:

- Recreation by locals triggers expenditure in the regional economy across retail trade, cafes, and other relevant sectors (e.g. transport depending on the activity).
- Based on survey data on recreational activities, frequencies and previous research on cash expenditure by activity type, we established estimates of total expenditure undertaken on recreational activities.
- Estimates were then used as inputs for estimating the economic impact of recreation by SEQ residents using a national accounting approach.

Table 1. Waterway-based recreation contribution to the economy

Measure	Low	Medium	High
Direct economic impacts			
Gross value added (\$M)	82	110	140
Contribution to Gross Regional Product (\$M)	93	125	159
Employment (jobs)	1,690	2,270	2,880
Indirect impacts			
Gross value added (\$M)	49	66	84
Contribution to Gross Regional Product (\$M)	56	75	95
Employment (jobs)	1,010	1,360	1,730
Total contribution			
Gross value added (\$M)	131	176	224
Contribution to Gross Regional Product (\$M)	149	200	254
Employment (jobs)	2,700	3,630	4,610

The mid-point estimate of the value of recreation-related ecosystem services was \$600 million/annum. This value was based on a travel cost method and benefit transfers from previous relevant studies. The underlying assumption is that the benefit of the waterway experience is worth at least what it costs to undertake the activity. The valuation approach used to develop annual estimates was:

- Detailed survey data from Healthy Waterways Ltd (visit to Gold Coast waterways (excluding beaches) only) used to estimate number of trips.
- Estimated number of trips multiplied by estimates of trip costs per trip type (updated estimates from literature. E.g. recreational fishing is \$85 per trip).
- Based on this data, it is possible to infer the total recreational value of waterways to residents.

Capital value estimates are based on assumed constant frequencies and values of individual trips and population growth. The capital value estimate is the present value of all future visits in perpetuity.³

Table 2. Estimated value of recreation-related ecosystem services is \$600 million/annum

Annual values (\$ million)			Capital values (\$ million)		
Low	Medium	High	Low	Medium	High
445	600	760	17,300	23,200	29,400

³ We have assumed that the number and types of visits per capita will remain constant over time, and the total number of visits will grow at the same rate as population growth. A discount rate of 5.0% (real) was used to capitalise the annual estimates into capital values.

3.4 Value Of Environmental Attributes

The estimated value of environmental attributes was \$4.0 - \$6.6 million per annum. The valuation approach used a stated preference technique to elicit the community's willingness to pay to protect waterway assets.

In 2017 Griffith University conducted a major survey of waterway health. The results found that Gold Coast households:

- Perceive that asset conditions are declining.
- Are willing to pay \$16.81 - \$27.16 per annum for investments in improving waterway health in order to avoid *one grade change* in the waterways report card.
- 65% of households think the payment should be added to their water bill or rates.
- Have a strong preference (approx. 80%) for acting now to prevent decline, rather than remediate later.⁴

The natural capital value estimate is based on assumed constant annual household values and builds in population growth. We estimate that the capitalised (asset) value, a permanent fall in report grades (e.g. B to C) reduces the natural capital value of the waterways by around \$205 million (range = \$140 - \$300 million).⁵

⁴ Smart, J., Fleming, C., Hasan, S. & Binney, J (2017) Public Willingness to Pay for improving waterway health in South East Queensland. Australian Rivers Institute, Griffith University.

⁵ We have assumed that the value per household of a one-step change estimated using the 2017 survey will remain constant over time, and the total number households will grow as per the Queensland Government Statistician's forecasts. A discount rate of 5.0% (real) was used to capitalise the annual estimates into capital values.

4 Tourism Industry

4.1 Importance To Tourists

The Gold Coast region has been moving towards 'destination marketing' with natural assets featured heavily as a driver of visitation. As can be seen in Figure 11 below using data from Tourism Research Australia visitor profiles, the Gold Coast's natural beauty and beaches are major a major drawcard for the region as a tourism destination. The data indicates that visitor expectations relating to waterways are currently being met, and natural capital is currently playing a major role in visitor attraction.

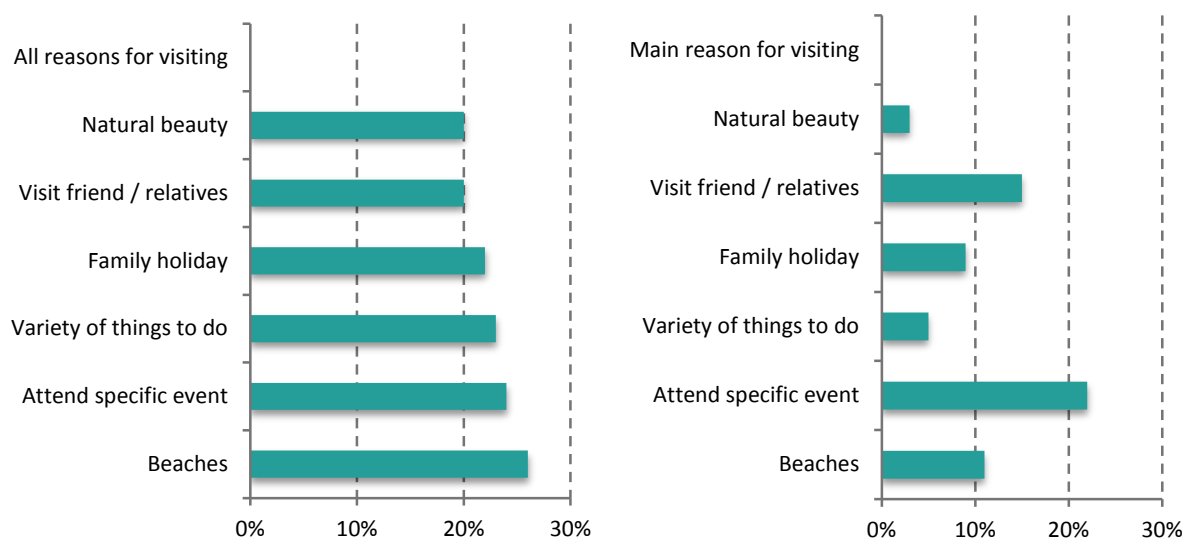


Figure 11. Tourist reasons for visiting the Gold Coast (all reasons on the left, main reasons on the right)

The survey of waterway-based tourism operators undertaken specifically for this report reveals:

- Activities are as broad as kayaking, parasailing, jet-skiing, jet boat rides, sailing, paddle boarding, houseboats, fly boarding, nature tours, and general boat cruises.
- Most businesses are relatively small (< 10 employees). Over 60% of employees have post-school training ranging from short industry qualifications through to postgraduate degrees.
- Businesses are growing.
- A significant focus on purchasing inputs locally (70%+ of inputs), creating economic flow-on benefits throughout the Gold Coast economy. Tourism is highly labour intensive.
- Findings were consistent with broader tourism business profiles.

The survey also revealed that good waterway access and safety are vital to many tourism businesses, significant declines in access or safety may trigger businesses to move, and more should be done to manage assets. This is shown in Figure 12 below.

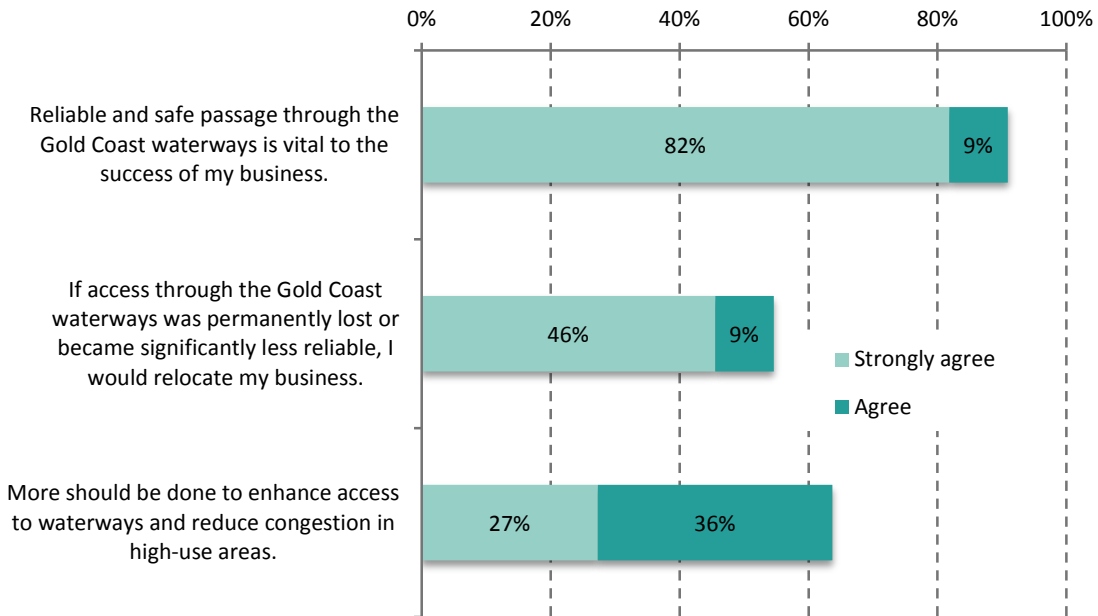


Figure 12. Importance of access and safety to tourism industry

Maintaining waterway health is also crucial to underpin much of the tourism industry, and Figure 13 below indicates users believe more should be done to manage assets. However, only around 36% of respondents strongly agreed or agreed that climate change is a major risk to their long-term viability.

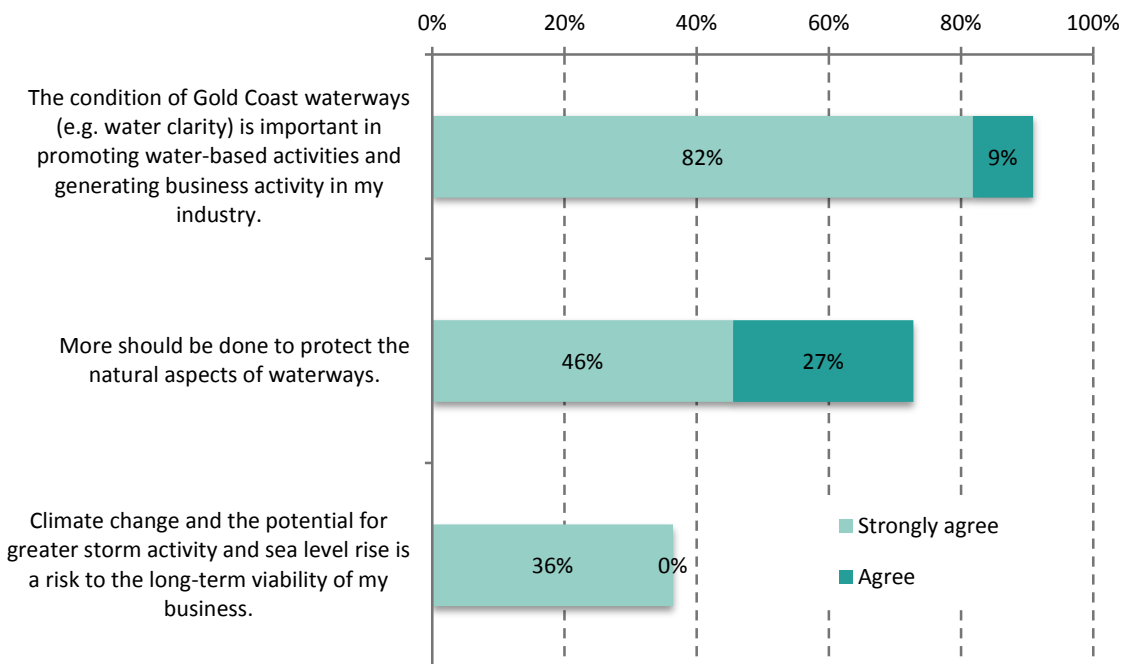


Figure 13. Importance of waterway health to tourism industry

4.2 Waterway-Based Tourism Contribution To The Economy

Two methods were used to develop estimates of tourism contributions, both using national accounting approaches:

- A bottom-up approach. Data was used from the project-specific survey of waterway-based operators grossed up to match the number and type of operators (information derived from operator directories) to model economic activity. This values the sector from the perspective of suppliers. For completeness, additional expenditure attributable to accommodation and food etc. for time taken to undertake activities was estimated using the ratio of estimated waterway-based activities to guest nights from industry statistics from the 2013 Tourism Research Australia (TRA) satisfaction survey.
- A top-down approach. Broader tourism statistics on activities (TRA 2013) were used to estimate a proportion of the tourism activities attributable to waterway tourism. This was then used to estimate the proportion of a visitor's trip was attributable to waterways and that proportion was applied to the tourism satellite account data for the Gold Coast (total direct value of tourism). This approach was realistically used as a means to broadly validate the estimates from the project-specific survey.
- Flow-on impacts for both approaches used the metrics established for the Tourism Satellite accounts (Deloitte Access Economics' Regional TSA model).

These methods are consistent with previous work to undertake the value of specific tourism industries (diving & snorkelling) in the Great Barrier Reef.⁶ Due to the relatively small sample sizes for surveys and other data limitations, the findings should be treated with care. However, estimates produced using the top-down approach are within the 95% confidence interval presented for the bottom-up approach (i.e. the estimates produced using both approaches are relatively consistent). Key findings were:⁷

- The estimated direct contribution to Gross Regional Product (GRP) is estimated at \$62 million per annum (range of estimates \$45 – 78 million).
- Direct employment is estimated at 710 jobs (range is 520 – 900).
- Including indirect impacts (flow on impacts), the estimated total contribution is:
 - GRP is \$89 million per annum (range \$65 – 113 million).
 - Employment is 1,170 (range 860 – 1,490).

Table 3. Waterway tourism contribution to the economy

Measure	Low	Medium	High
Direct economic impacts			
Gross value added (\$M)	34	47	60
Contribution to Gross Regional Product (\$M)	45	62	78
Employment (jobs)	520	710	900
Indirect impacts			
Gross value added (\$M)	31	42	53
Contribution to Gross Regional Product (\$M)	43	58	74

⁶ GBRMPA (2009) The recreational dive and snorkelling industry in the Great Barrier Reef: profile, economic contribution, risks and opportunities

⁷ The medium estimates produced are based on the mean responses to the survey. The low and high estimates represent the sampling error at a 95% confidence interval.

Employment (jobs)	340	460	590
Total contribution			
Gross value added (\$M)	65	89	113
Contribution to Gross Regional Product (\$M)	87	120	152
Employment (jobs)	860	1,170	1,490

4.3 The Value Of Waterway Ecosystem Services To The Waterway-Based Tourism Sector

Access to, and the health of waterways are two specific but interrelated provisioning and cultural ecosystem services underpinning the waterway-based tourism industry, and this access and condition is partially maintained through dredging and other GCWA activities. The GCWA currently aids in maintaining access through dredging, nourishment and other projects such as the installation of boat ramps, pontoons and jetties. Industry surveys indicate that access to the waterways is currently not an impediment to their business. The health and condition of the waterway is collaboratively managed by state and local agencies (GCWA, CoGC, DAF) as well as local business and community (HLW, Community groups).

GCWA actively monitor the health and condition of the waterways through the implementation of a Scientific Research and Management Program, overseen by leading experts from Griffith University, QUT, Bond and SCU.

The industry survey reveals that on average 46% (of businesses strongly agree with the *statement “if access to or through the Gold Coast waterways was permanently lost or became significantly less reliable, I would relocate my business.”* (33 – 58% at the 95% confidence interval) This is primarily due to the fact their business model is based on the appeal of the waterways. Using a deprivation method, the economic model of the waterway-based tourism industry was used to estimate the annual reduction in economic value added by the industry if a proportion of relevant businesses) did actually leave the Gold Coast altogether. The range of impacts estimated is based on the survey responses (i.e. 46% as the average and a range of 33 – 58% to represent the potential range).

Natural capital value of waterways to the waterway-based tourism operators was also estimated using the deprivation value approach (where the ecosystem services are lost permanently). As a baseline, we have assumed that the industry would grow by the same rate as the population, providing waterway access and condition are maintained.

It is evident that the value of waterways to the waterway-based tourism industry is significant. Key findings are:

- The estimated annual value of access to the waterway-based tourism industry is around \$8.5 million (range of \$4.5 – \$13.6 million).
- The estimated value of a permanent and total loss is around \$330 million (range \$175 – \$530 million).

These estimates should be treated with caution as there would be significant transitional costs associated with relocating these businesses, and many business may find alternative opportunities within the Gold Coast that don't require relocating altogether.

5 Marina Sector

There are 20 marinas across the Gold Coast, each facilitating and contributing to significant economic activity. The survey of marina businesses reveals:

- A broad scope of marine-based activities from boat building to chandlery across the 20 marinas on the Gold Coast.
- Businesses are growing.
- The Gold Coast Marine industry is dominated by small businesses (<10 employees), but there are some large employers.
- Around 55% of all employees have undertaken post-school qualifications.
- 63% of inputs are sourced from other Gold Coast businesses, reinforcing the flow-on impacts attributable to economic activity in the marina sector.

The survey also found that locations and access through waterways is vital to the marina sector. This is shown in Figure 14 below.

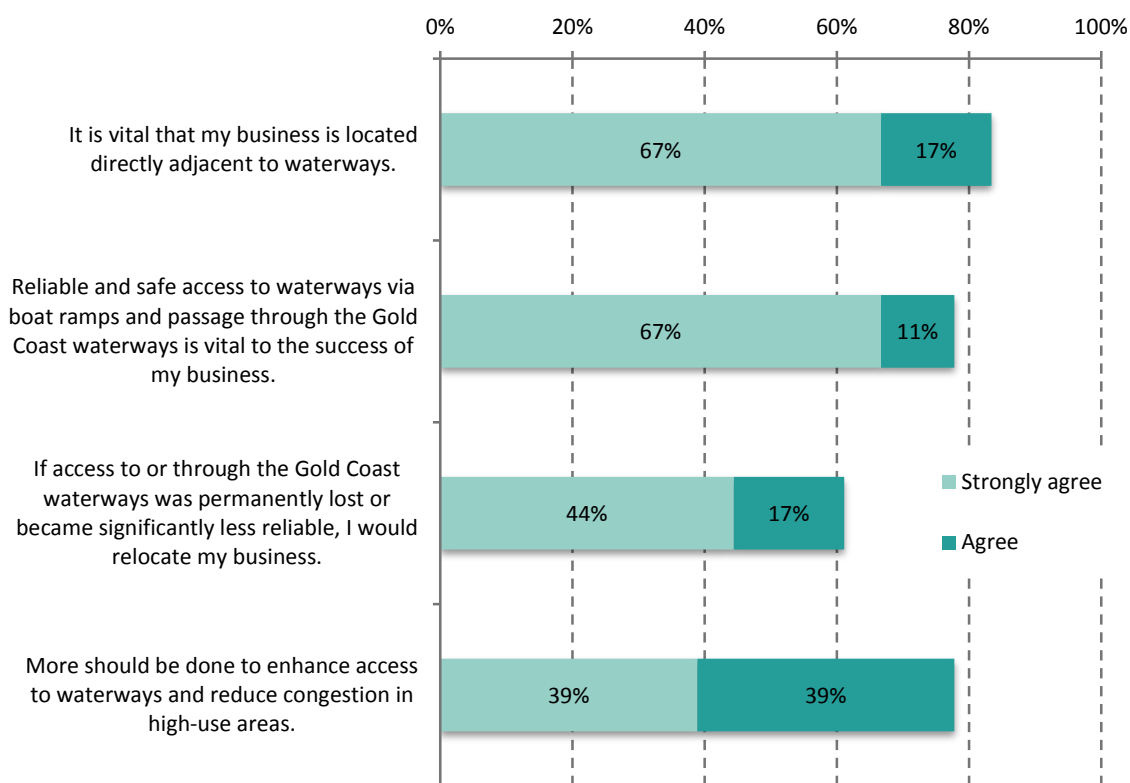


Figure 14. Importance of safe access to the marina industry

Furthermore, the survey found that waterway health triggers significant activity that underpins the level of activity and turnover for the marina industry, therefore, to support and maintain these businesses, more should be done to manage the waterway assets.. This is shown by the survey results presented in Figure 15 below.

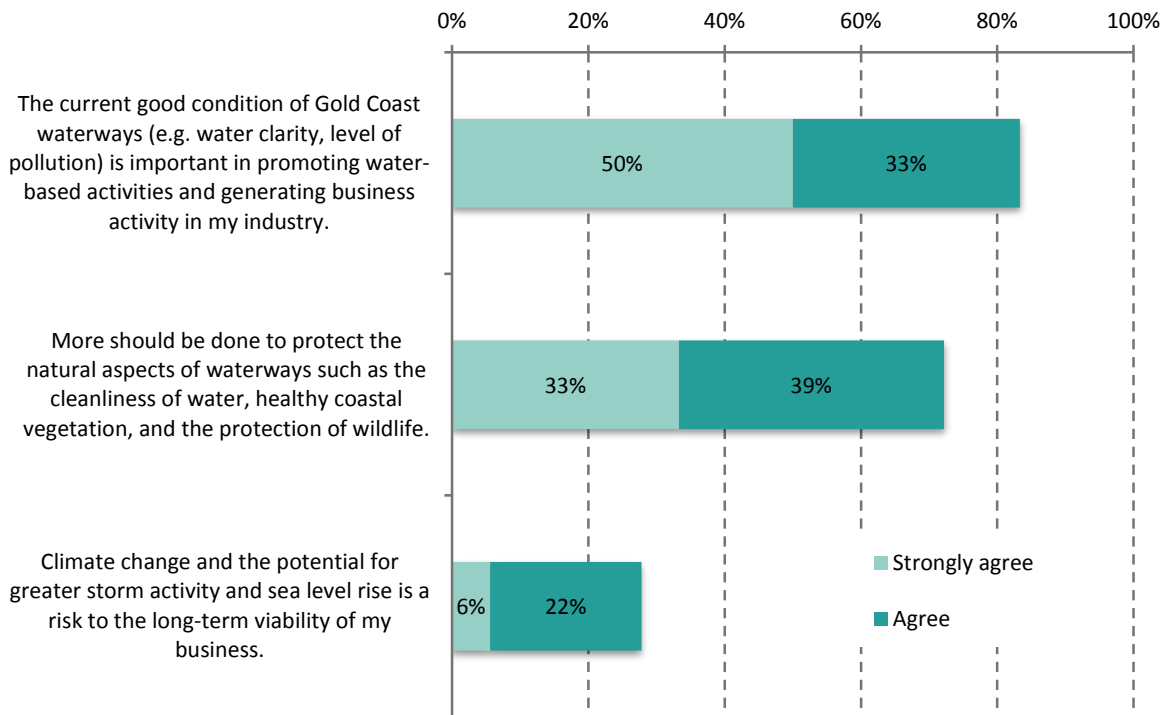


Figure 15. Importance of waterway health to marina industry

5.1 Marinas Contribution To The Economy

There is significant economic activity across the sector. To estimate the contribution of the marina sector to the Gold Coast economy the study undertook a number of economic modelling activities:

- Economic modelling was undertaken using national accounting approach to estimate contribution to GRP.
- Data was sourced from NCEconomics survey of the industry and a broader national survey conducted periodically for the Marina Industry.
- Findings of the analysis from survey responses were then grossed-up to establish industry estimates based on industry-wide data from the extensive survey of the Marina industry undertaken by Mahoney et al in 2013.
- A range of estimates were produced (low, medium, high), with the low and the high estimates reflecting a 95% confidence interval around the medium estimate from the survey completed specifically for this project.
- The indirect impacts are estimated using published multipliers for the Gold Coast economy developed by Queensland Treasury for their economy-wide model of the Gold Coast regional economy.

The direct contribution to Gross Regional Product (GRP) is estimated at \$252 million per annum (range of estimates \$165 – 357 million). Direct employment is estimated at 960 jobs (range is 760 – 1,170). Including indirect impacts (flow on impacts), the total contribution is:

- GRP is \$451 million (range \$295 – 639 million).
- Employment is 1,720 (range 1,360 – 2,090).

A more detailed breakdown of estimates is shown in Table 4 below.

Table 4. Marinas contribution to the economy

Measure	Low	Medium	High
Direct economic impacts			
Gross value added (\$M)	84	127	178
Contribution to Gross Regional Product (\$M)	165	252	357
Employment (jobs)	760	960	1,170
Indirect impacts			
Gross value added (\$M)	66	100	141
Contribution to Gross Regional Product (\$M)	130	199	282
Employment (jobs)	600	760	920
Total contribution			
Gross value added (\$M)	150	227	319
Contribution to Gross Regional Product (\$M)	295	451	639
Employment (jobs)	1,360	1,720	2,090

5.2 The Value Of Waterway Ecosystem Services To The Marina Industry

Access to and through the waterways is a key provisioning service underpinning the marina industry, which is maintained through dredging and other GCWA activities.

The industry survey reveals 44% (33 – 55% at the 95% confidence interval) of businesses strongly agree with the statement *“if access to or through the Gold Coast waterways was permanently lost or became significantly less reliable, I would relocate my business.”* This is primarily due to the need for access for customers. If passage through waterways is lost and access to marina businesses is no possible, businesses will relocate, potentially away from the Gold Coast.

Using a deprivation method, we have used the economic model of the marina industry to estimate the annual reduction in economic value added by the marina industry if marina businesses did actually leave the Gold Coast.⁸

We have also estimated a natural capital value of waterways to the marina industry based on a permanent loss of economic value added attributable to 33%, 44%, and 55% of the industry. As a baseline, we have assumed that the industry would grow by the same rate as the population, providing waterway access and condition are maintained. It is evident that the value of access via waterways to the marina industry is significant. Key findings are:

- The annual value of access to the marina industry is at least \$28 million (range of \$28 – \$99 million).

⁸ The range of impacts estimated is based on the survey responses (i.e. 44% as the average and a range of 33 – 55% to represent the potential range at the 95% confidence interval).

- The estimates value of a permanent loss of access is at least \$1.09 billion (range \$1.09 – 3.84 billion).

Table 5. Estimated value of access via waterways to the marina industry

Annual values (\$ million)			Capital values (\$ million)		
Low	Medium	High	Low	Medium	High
28	56	99	1,090	2,190	3,840

These estimates should be treated with caution as there would be significant transitional costs associated with relocating marina businesses, and many business may find solutions apart from relocating if access was permanently lost.

Case Study Profile: Gold Coast International Boat Show and Marine Expo

This is Emma Brown and her colleague Andrew Mills. Emma has been running the Gold Coast International Boat Show and Marine Expo since it started back in 2011.

The photo was taken just after the 2017 Expo. It ran for three days and had 23,000 visitors. While a large percentage of those who attended were locals, plenty came from interstate and overseas as well. There were over 350 marine brands on display, across 3km of exhibition space.



Figure 16. Event managers, Emma Brown and Andrew Mills, fresh from hosting 23,000 visitors and 350 exhibitors over three days at the 2017 Gold Coast International Boat Show and Marine Expo (Photo: NCEconomics)

Both Emma and Andrew are very passionate about their job and the boating industry, and when you learn about their individual backgrounds not a surprise why.

Emma was first taken on a boat at three days old and exposed to the boating industry from an early age. Says Emma:

“I grew up on the water – I had my boat licence before my car licence; I could drive a tender before I could tie my shoelaces.”

In Emma’s experience, many locals visiting the Expo for the first time are surprised to learn that there is a river in Coomera. Or anything beyond Dreamworld for that matter. When in fact, Coomera is home to the biggest marine precinct in Australia. The precinct currently hosts over 60 individual businesses, employing an estimated 2500 people.

Emma says the intent of the Expo is to showcase all facets of the boating industry. She also points out that there are also significant economic flow-on benefits from the show:

“Visitors come here from interstate and internationally specifically for our boat show and while they are here they spend money on accommodation, dining and on having fun.”

Emma and Andrew see a real sense a confidence and optimism within the industry. Following the 2017 show, for example, one of their exhibitors had 18 months’ worth of backorders in place for one of their boats.

Refer to Appendix 6 for the full version of the above case study.

6 Waterways And Property Value

The study found that waterways add to property values on the Gold Coast, and any major declines in waterways would severely impact property values.

The logic behind this conclusion is as follows:

- Numerous studies and industry experience shows that proximity to, direct access to, or views of water enhance property value. This largely reflects the recreational and other amenity values.
- In the Gold Coast, access to water is one of the most important determinants of property value.
- High levels of proximity to waterways due to the Gold Coast's historical development patterns and the expansive canals & river network:
 - 20% < 100m of a waterway;
 - 20% 100-250m,
 - 20% 250-500m and
 - 20% 500-1,000m.
- Over 90% of Gold Coast properties are within five kilometres of a waterway.

To avoid the risk of double counting, these values are not included in our aggregate estimates. However, the relationship between waterways and property values was analysed. Key points are as follows:

- A hedonic pricing model for the relationship between proximity to water and land values for Gold Coast property was previously developed by MJA and was used for this study.⁹
- Land within 20 metres of the coast or a waterway had an average unimproved land value of \$473 per square metre. The land value falls rapidly to \$162 per square metre at 100 metres from water, gradually reducing to \$72 per square metre at one kilometre and \$11 per square metre by five kilometres.
- Major declines in waterways would severely impact on land values (including net migration & population growth).

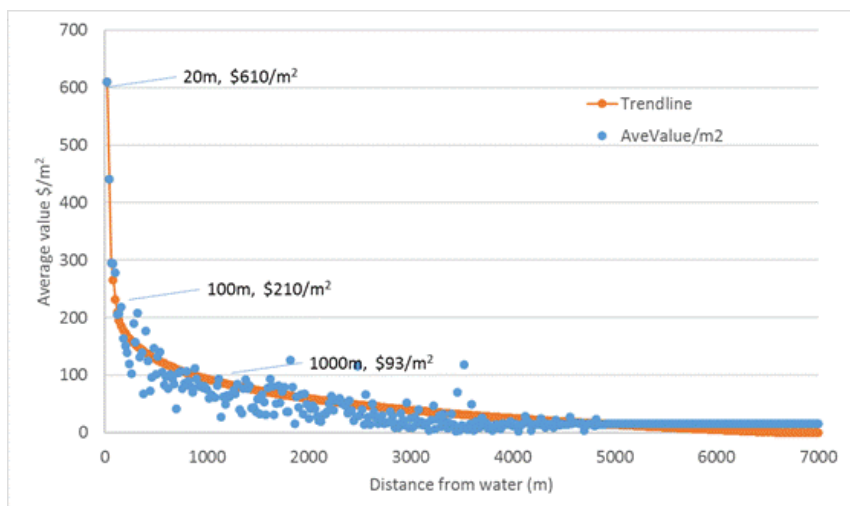


Figure 17. Relationship between waterways and land value

⁹ Marsden Jacobs (2014) The economic value of water on the Gold Coast

7 Conclusions

This section briefly outlines the conclusions from the analysis and suggested next steps.

The analysis has found that waterways are a major driver of the Gold Coast’s identity. They underpin significant recreational activity for residents and visitors alike, provide a unique aesthetic and sense of place to many residents, and are ultimately a significant contributor to many residents’ desire to live on the Gold Coast.

Surveys undertaken specifically for this project indicate that any decline in waterways (access or condition) could have a significant impact on the community, and reduces likely net migration. This will have knock-on impacts in the broader economy and the property sector. This also has significant implications for management agencies at all levels of Government. Management agencies need to delicately manage enhanced access to waterways for recreational use, as well as maintain environmental condition. If this is not done, regional planning and waterway management objectives may not be met. The surveys undertaken specifically for this project indicate strong support for additional effort to maintain the accessibility and health of the waterways for future generations.

Analysis of the contribution of waterways to the regional economy found that waterways underpin significant economic activity, with an estimated contribution to regional GRP of around \$440 million per annum (medium estimate). When the flow-on or indirect impacts of this economic activity are accounted for, the estimated contribution is around \$770 million per annum (medium estimate).

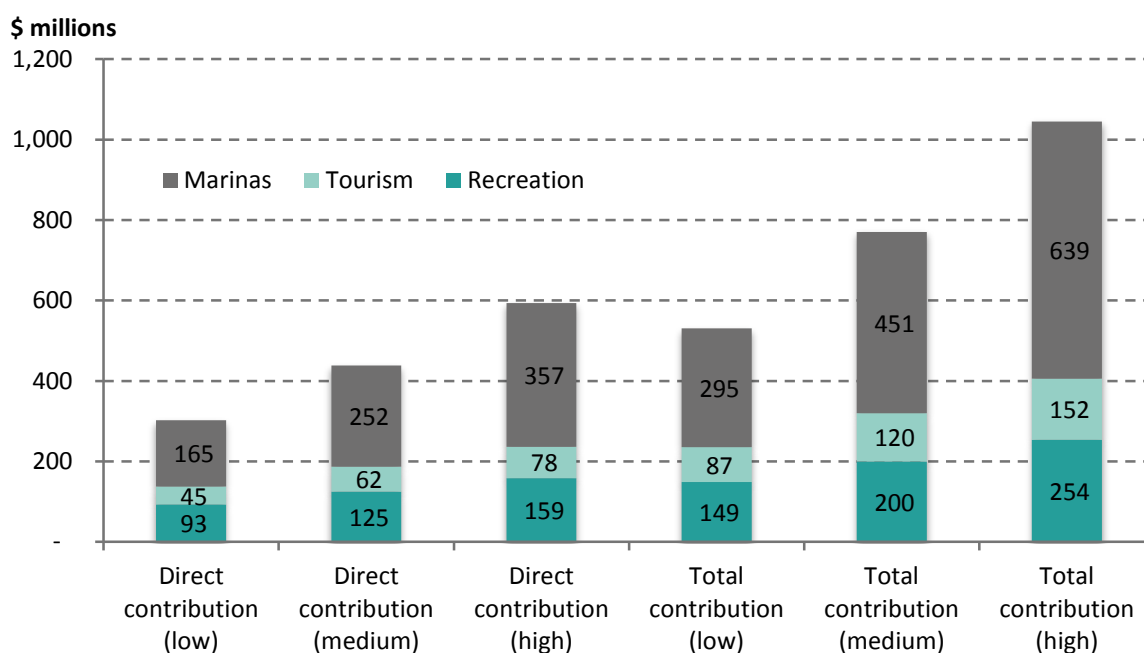


Figure 18. Contribution of waterways to regional economy- annual direct & total contributions (including flow-on impacts)

Analysis of the contribution of waterways to regional employment found that the economic activity attributable to waterway use is also a significant job creator, particularly recreational expenditure that is concentrated on retail trade. Total direct jobs attributable to economic activity are around 4,000 (medium estimate). When indirect impacts are also included, over 6,000 jobs could be attributable to the waterways.

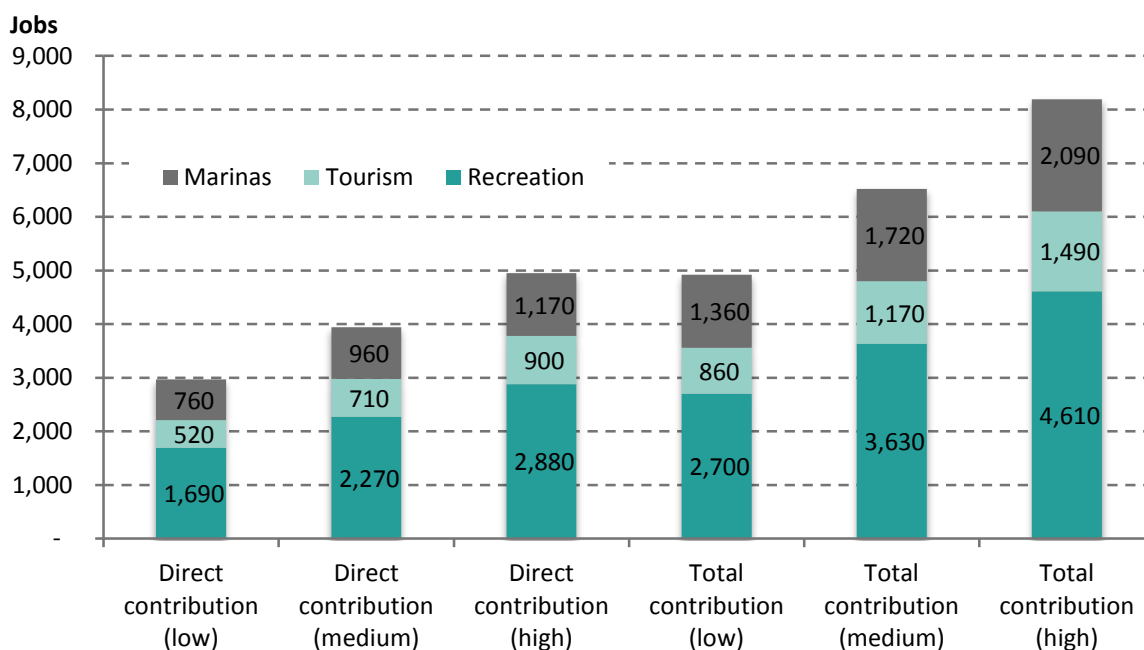


Figure 19. Contribution of waterways to regional employment - annual direct & total contributions (including flow-on impacts)

This report has also developed indicative estimates for the value of the ecosystem services attributable to the waterways. Broadly this was estimates using a deprival valuation approach (i.e. what is the value of the market and non-market benefits of waterways that would be lost if access and the condition of the waterways was significantly impacted or lost altogether?). Table 6 provides a summary for annual value of ecosystem services, and natural capital values. The economic value of ecosystem services and natural capital is very significant, particularly relating to recreational values for residents. These values are typically not measured in market terms.

Table 6. The value of natural capital

	Annual value of ecosystem services (\$ million)			Natural capital values (\$ million)		
	Low	Med	High	Low	Med	High
Recreation (social use value)	445	600	760	17,300	23,200	29,400
Water quality (value of avoiding one grade decline)	4	5	7	140	205	300
Tourism (value of access & quality underpinning tourism activity)	5	9	14	175	330	530
Marinas (value of access & quality underpinning industry activity)	28	56	99	1,090	2,190	3,840
Total value	482	670	879	18,705	25,925	34,070

Waterways are a massive economic and social asset that assists in underpinning the Gold Coast's phenomenal success as a world class destination for tourism and regional growth more broadly.

There is a strong economic and social case for enhanced management. This is also supported strongly by the community and waterway-reliant businesses alike.

7.1 Future directions

This report represents the first attempt to place a comprehensive valuation on the Gold Coast waterways. The estimates produced are based on available government and industry data, three project-specific surveys and industry consultation. The information in this report could be improved through undertaking more comprehensive surveys of both residents and industry.

A more comprehensive picture of tourist use of waterways and the importance of waterways to tourists' visitor intentions would be invaluable.

The economic estimates developed in this report could also be extended into a broader economic analysis framework (a cost-benefit analysis) to assess the costs and benefits of alternative management strategies and investments (e.g. what is the potential value of enhancing access?).

Furthermore, there are a number of other issues that could be addressed to provide a more comprehensive information base for enhanced decision-making. This includes:

- Spatial and temporal analysis of recreational use patterns to underpin optimal decisions on enhancing infrastructure (e.g. boat ramps) and potential interventions to smooth out usage patterns and avoid congestion.
- The incorporation of the work currently underway on long-term trends and risks to the waterway condition and the logical implications for investment and asset management by GCWA.
- Given the obvious value of waterways to the regional economy, explore options for co-financing and 'crowding in' private sector capital to projects that enhance the economic value of the waterways and the employment generated from the sustainable use of the waterways.
- Develop an ongoing monitoring programme for commercial users of waterways to enable better provision of services and infrastructure.

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Attachment A

Waterway Ecological Overview

Appendix 1 - Waterways Ecological Overview

The waterways of the Gold Coast provide a wide range of values which have been identified to assist with the assessment of the ecosystem services that they provide. Based on existing studies, a desktop review of the values of the major waterways was considered on catchment by catchment basis, and these are summarised below in Table 7. In addition, the key threats to these values have been highlighted and other information linked to condition (based on Healthy Land and Water Report Cards) is also provided. To further highlight the importance of waterways related habitats across the Gold Coast, Figure 20 shows the extent of seagrasses that have been recently mapped in the study area. The mapping indicates there are more than 50 ha of seagrasses, which provide a range of vital ecological functions, across the relevant catchments. The total area of mangroves in Pimpama-Coomera alone is approximately 3,000 hectares.

Table 7. Waterway assets - extent and condition

Relevant Catchment	Values summary	Management of threats summary	Report Card Grade 2015	Report Card Grade 2016	Report Card trends	Information sources
Broadwater	<ul style="list-style-type: none"> • Various marine species use different habitats for spawning, nursing young, seeking refuge or feeding • Retains a very high proportion of wetland habitat • High water quality rating despite extensive pollutants from urban and industrial areas given extensive flushing via Gold Coast Seaway 	<ul style="list-style-type: none"> • Urban stormwater management/improvement • Habitat protection and management • Climate change –WBM report? 	A-	B+	Has been as low as a C- due to sewage signal, phosphorus levels and water clarity	GCCC (undated); HW 2015; HW&C 2016
Pimpama	<ul style="list-style-type: none"> • The riparian areas along the estuarine section of the Pimpama River are in relatively good condition with some areas included in the Pimpama Fish Habitat Area • Important remnant wetland, forest and mangrove habitats • Significant flora and fauna species in the catchment • In the estuarine reaches sugarcane farming is the dominant land use, although grazing, sand mining and urban areas are also present and contribute pollutants from fertiliser leaching, agricultural run-off and stormwater 	<ul style="list-style-type: none"> • Urban stormwater management/improvement • Instream rehabilitation • Improved farming practices (to address nutrient and sediment loads) • Livestock management in riparian zones • Habitat restoration including riparian buffer establishment 	C+	B	Last two years covers range of scores from 2009-2014 - linked to changing levels of dissolved oxygen, turbidity and algal concentrations	CGC (2013); HW 2015; HW&C 2016
Coomera	<ul style="list-style-type: none"> • Report cards (HW 2015) for the estuary show a decline in ecological health • Riparian habitat throughout the estuary, particularly on the 	<ul style="list-style-type: none"> • Urban stormwater management/improvement • Habitat restoration including 				GCCC 2008a; HW 2015; HW&C 2016

Relevant Catchment	Values summary	Management of threats summary	Report Card Grade 2015	Report Card Grade 2016	Report Card trends	Information sources
	<p>southern banks, have been heavily impacted and continues to be impacted by commercial boat building activities, marine infrastructure developments and canal estates (including dredging)</p> <ul style="list-style-type: none"> • Tidal flushing linked to nutrient loads critical • <i>“The Coombabah Wetlands and Parkwood Reserves cover about 1300 hectares and are adjacent to more than 800 hectares of state-managed reserves, wetlands and waterways. The wetlands extend from Lake Coombabah to the Broadwater and southern Moreton Bay. They incorporate salt marsh, eucalypt forests and mangrove habitats....with 11 distinct ecosystems which are home to many threatened species of flora and fauna”</i> 	<ul style="list-style-type: none"> • riparian buffer establishment 				
Nerang	<ul style="list-style-type: none"> • Estuary has very low levels of natural riparian vegetation • Significant levels of urban development pressure • Mangroves remain the predominant remnant habitat type 	<ul style="list-style-type: none"> • Urban stormwater management/improvement • Habitat restoration including riparian buffer establishment 	C-	C	Typically close to B between 2009-2014 – varies due to turbidity, nutrient and algae concentrations	GCCC 2011; HW 2015; HW&C 2016
Tallebudgera	<ul style="list-style-type: none"> • Estuary has trend of increasing nitrogen levels • Some conservation areas and narrow of riparian vegetation all that remain • Wetlands of conservation value 	<ul style="list-style-type: none"> • Major threats to values here include boatwash/erosion, weeds (which threaten many remnants) • Coordinated approach to riparian restoration and management 	C+	B	Freshwater grade typically B	GCCC 2008b; HW 2015; HW&C 2016
Currumbin	<ul style="list-style-type: none"> • Lower estuary: extensive revetment works in places, pockets of habitat for mangrove and salt marsh vegetation in some locations including the Currumbin Creek Fisheries 	<ul style="list-style-type: none"> • Livestock management in riparian zones • Habitat restoration including 				GCCC 2004; HW 2015; HW&C 2016

Relevant Catchment	Values summary	Management of threats summary	Report Card Grade 2015	Report Card Grade 2016	Report Card trends	Information sources
	<p>Habitat Reserve. Healthy seagrass beds have been identified along the northern shores of the lower estuary. Historical dredging and extraction impacts.</p> <ul style="list-style-type: none"> • Currumbin Creek is considered of high biodiversity value and of ecological significance given the presence of diverse macroinvertebrate communities, significant freshwater fish populations and platypus • EHMP surveys linked to HW Report Card suggest moderate overall condition • High sediment and nutrient loads generated in catchments • Note that in GCCC 2004 the Environmental values supported by water quality objectives 	<p>riparian buffer establishment</p> <ul style="list-style-type: none"> • Erosion control works (banks) • Boat wake management • Management of impoundment structures 				

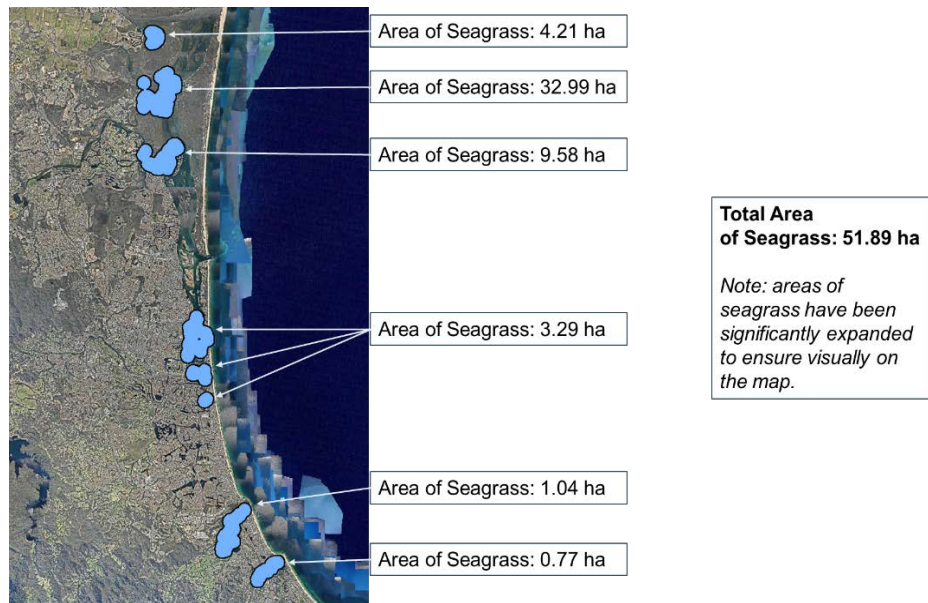


Figure 20. Waterway Assets - Seagrass

Appendix 2 - Marina Industry Survey

Which of the following categories best describes the goods and services provided by your business.	
Answer Options	Response Percent
Boat building and fabrication	33.3%
Maintenance (e.g. sandblasting, painting) and repairs (mechanical, electrical etc.)	33.3%
Boat sales	26.7%
Chandlery and marine products	26.7%
Food and catering	13.3%
Crew services	6.7%
Professional services (e.g. engineering design, insurance, finance, detailing)	13.3%
Boat hire	6.7%
Training	20.0%
Other (please specify)	

Has the number of employees in your business increased or decreased in the past five years?	
Answer Options	Response Percent
Decreased a lot (e.g. more than 10%)	5.6%
Decreased a little (e.g. less than 10%)	16.7%
No change	16.7%
Increased a little (e.g. less than 10%)	22.2%

Increased a lot (e.g. more than 10%)	38.9%
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Has your turnover changed in the past five years?	
Answer Options	Response Percent
Decreased a lot (e.g. more than 10%)	0.0%
Decreased a little (e.g. less than 10%)	16.7%
No change	11.1%
Increased a little (e.g. less than 10%)	38.9%
Increased a lot (e.g. more than 10%)	33.3%

It is vital that my business is located directly adjacent to waterways.	
Answer Options	Response Percent
Strongly agree	66.7%
Agree	16.7%
Neither agree or disagree	11.1%
Disagree	0.0%
Strongly disagree	5.6%

Reliable and safe access to waterways via boat ramps and passage through the Gold Coast waterways is vital to the success of my business.	
Answer Options	Response Percent
Strongly agree	66.7%
Agree	11.1%
Neither agree or disagree	16.7%

Disagree	0.0%
Strongly disagree	5.6%

If access to or through the Gold Coast waterways was permanently lost or became significantly less reliable, I would relocate my business.	
Answer Options	Response Percent
Strongly agree	44.4%
Agree	16.7%
Neither agree or disagree	27.8%
Disagree	5.6%
Strongly disagree	5.6%

The current good condition of Gold Coast waterways (e.g. water clarity, level of pollution) is important in promoting water-based activities and generating business activity in my industry.	
Answer Options	Response Percent
Strongly agree	50.0%
Agree	33.3%
Neither agree or disagree	11.1%
Disagree	5.6%
Strongly disagree	0.0%

More should be done to enhance access to waterways and reduce congestion in high-use areas.	
Answer Options	Response Percent
Strongly agree	38.9%
Agree	38.9%

Neither agree or disagree	11.1%
Disagree	0.0%
Strongly disagree	11.1%

More should be done to protect the natural aspects of waterways such as the cleanliness of water, healthy coastal vegetation, and the protection of wildlife.

Answer Options	Response Percent
Strongly agree	33.3%
Agree	38.9%
Neither agree or disagree	16.7%
Disagree	11.1%
Strongly disagree	0.0%

Climate change and the potential for greater storm activity and sea level rise is a risk to the long-term viability of my business.

Answer Options	Response Percent
Strongly agree	5.6%
Agree	22.2%
Neither agree or disagree	38.9%
Disagree	22.2%
Strongly disagree	11.1%

Appendix 3 – Tourism And Recreation Operators Survey

Which of the following categories best describes the goods and services provided by your business.	
Answer Options	Response Percent
Power boat / jet ski hire	9.1%
Sail boat, kayak, SUP hire	0.0%
Houseboat hire	0.0%
Guided power boat / jet ski tours	9.1%
Guided sailing, kayak or SUP tours	18.2%
Fishing tours	18.2%
Diving or snorkeling tours	0.0%
Point-to-point transport (e.g. water taxi)	9.1%
Nature tours (e.g. bird watching)	9.1%
Equipment retail (e.g. fishing gear, kayaks etc.)	0.0%
Other (please specify)	45.5%
Included: Sail Training and Yacht Charter, Media production, recreational boat and PWC Licencing, BoatSafe Training Provide, Guided Amphibious Tours.	

Has the number of employees in your business increased or decreased in the past five years?	
Answer Options	Response Percent
Decreased a lot (e.g. more than 10%)	0.0%
Decreased a little (e.g. less than 10%)	0.0%
No change	40.0%
Increased a little (e.g. less than 10%)	20.0%
Increased a lot (e.g. more than 10%)	40.0%

Has your turnover changed in the past five years?	
Answer Options	Response Percent
Decreased a lot (e.g. more than 10%)	0.0%
Decreased a little (e.g. less than 10%)	0.0%
No change	27.3%
Increased a little (e.g. less than 10%)	9.1%
Increased a lot (e.g. more than 10%)	63.6%

Reliable and safe passage through the Gold Coast waterways is vital to the success of my business.	
Answer Options	Response Percent
Strongly agree	81.8%
Agree	9.1%
Neither agree or disagree	9.1%
Disagree	0.0%
Strongly disagree	0.0%

If access through the Gold Coast waterways was permanently lost or became significantly less reliable, I would relocate my business.	
Answer Options	Response Percent
Strongly agree	45.5%
Agree	9.1%
Neither agree or disagree	36.4%
Disagree	0.0%
Strongly disagree	9.1%

The condition of Gold Coast waterways (e.g. water clarity) is important in promoting water-based activities and generating business activity in my industry.

Answer Options	Response Percent
Strongly agree	81.8%
Agree	9.1%
Neither agree or disagree	0.0%
Disagree	9.1%
Strongly disagree	0.0%

Feedback from my customers is that the condition of Gold Coast waterways (e.g. water clarity) meets or exceeds their expectations.

Answer Options	Response Percent
Strongly agree	18.2%
Agree	45.5%
Neither agree or disagree	36.4%
Disagree	0.0%
Strongly disagree	0.0%

More should be done to enhance access to waterways and reduce congestion in high-use areas.

Answer Options	Response Percent
Strongly agree	27.3%
Agree	36.4%
Neither agree or disagree	18.2%
Disagree	9.1%

Strongly disagree	9.1%
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More should be done to protect the natural aspects of waterways.

Answer Options	Response Percent
Strongly agree	45.5%
Agree	27.3%
Neither agree or disagree	9.1%
Disagree	9.1%
Strongly disagree	9.1%

Climate change and the potential for greater storm activity and sea level rise is a risk to the long-term viability of my business.

Answer Options	Response Percent
Strongly agree	36.4%
Agree	0.0%
Neither agree or disagree	27.3%
Disagree	27.3%
Strongly disagree	9.1%

Appendix 4 – Social Values Survey

**How far away from your home is the waterway that you visit the most?
(please tick) Reminder: we are focused here on inland waterways including rivers, canals, lakes and dams within the City of Gold Coast local government area, as well as the areas at the mouth of the Nerang River, Currumbin Creek and Tallebudgera Creek.**

Answer Options	Response Percent
Less than 1 km	64.2%
1 – 5 km	15.7%
5 – 10 km	7.5%
10 – 20 km	8.5%
20 – 50 km	3.4%
Over 50 km	0.3%
Don't know	0.3%

Indicate the three activities you undertake the most often.

Answer Options	Response Percent
Boating, sailing	62.5%
Jet skiing, water skiing, driving a powerboat	42.3%
Walking, cycling or running next to waterways	72.5%
Picnics, BBQs next to waterways	54.0%
Recreational fishing	52.6%
Rowing, kayaking, canoeing	37.5%
Scuba diving, snorkelling	29.9%
Kite-surfing, sail boarding, SUP	27.8%
Swimming	50.9%

Enjoying nature (birdwatching, conservation activities, photography etc.)	44.7%
Other	7.6%

Please indicate the three most important barriers to your use of waterways.	
Answer Options	Response Percent
Not enough time	47.8%
Polluted water	22.8%
Lack of infrastructure (e.g. carparks, paths, ramps, pontoons)	41.4%
I have poor physical health	7.5%
I don't have enough information (e.g. where or how)	12.3%
Litter in waterways	19.0%
Lack of natural vegetation	16.8%
Concern for my health and safety	17.9%
Creatures that bite or sting	24.6%
Lack of amenities e.g. toilets, BBQs, shelter	32.5%
Other	26.9%

Waterways are a significant reason why I choose to live on the Gold Coast.	
Answer Options	Response Percent
Strongly agree	71.3%
Agree	21.8%
Neither agree or disagree	5.1%
Disagree	1.0%
Strongly disagree	0.7%

Waterways contribute to my personal health and wellbeing (e.g. fitness, relaxation, happiness, lifestyle, sense of place).

Answer Options	Response Percent
Strongly agree	78.0%
Agree	18.2%
Neither agree or disagree	3.1%
Disagree	0.0%
Strongly disagree	0.7%

If waterway access, safety or condition declined significantly I would reduce the frequency I visit and use waterways.

Answer Options	Response Percent
Strongly agree	49.0%
Agree	36.6%
Neither agree or disagree	7.5%
Disagree	4.5%
Strongly disagree	2.4%

If waterway access, safety or condition declined significantly I would consider moving from the Gold Coast to another location.

Answer Options	Response Percent
Strongly agree	25.1%
Agree	30.9%
Neither agree or disagree	24.7%
Disagree	13.7%
Strongly disagree	5.5%

More should be done to enhance access to waterways and reduce congestion in high-use areas.

Answer Options	Response Percent
Strongly agree	41.2%
Agree	33.0%
Neither agree or disagree	19.2%
Disagree	5.2%
Strongly disagree	1.4%

More should be done to protect and enhance the natural aspects of waterways such as the cleanliness of water, healthy coastal vegetation, and the protection of wildlife.

Answer Options	Response Percent
Strongly agree	61.6%
Agree	25.3%
Neither agree or disagree	8.9%
Disagree	3.1%
Strongly disagree	1.0%

I would support more resources being used for waterway management, even if that meant a very small increase in my property rates or rent.

Answer Options	Response Percent
Strongly agree	35.8%
Agree	30.0%
Neither agree or disagree	14.3%
Disagree	11.3%

Strongly disagree	8.5%
Many people on the Gold Coast volunteer some of their time to help care for waterways (e.g. Gold Coast Catchment Association) or assist with events at waterways. What best describes the number of hours people from your household would undertake voluntary work to protect or use waterways per month.	
Answer Options	Response Percent
I don't volunteer time for waterways	37.0%
<1 hour	17.5%
1 – 2 hours	17.5%
2 – 5 hours	8.9%
Over 5 hours	10.6%
I don't know	8.6%

Some members of the community have concerns that the condition of our waterways are declining and a number of potential reasons have been identified. Please indicate what you believe are the three greatest threats to Gold Coast waterways and their importance to your household.	
Answer Options	Response Percent
Climate change and sea level rise	21.6%
Population growth and increases in pollution entering waterways	71.8%
Over use and congestion on and next to waterways	54.0%
Development that reduces access to waterways	53.0%
Over fishing	19.5%
Rules and regulations that restrict my use of waterways	20.6%
Infrastructure not keeping up with demand	37.6%
Tourists	8.4%
There are no threats to our waterways	6.6%

Other (please specify)

20.9%

Attachment C

Case Study Profiles

Appendix 5 – Case Study Profile: Bob Westerman

Please note: this story has been written with verbal delivery in mind. There are two version: full version (about 600 words – see below), and short version (300 words – see below, plus main body of report).

March 2017



Bob Westerman on Curllew Island, a haven for waterbirds who travel to the Gold Coast from up to 10,000 km away.
(Photo: NCEconomics)

Full Version:

This is Bob Westerman. Bob knows something pretty impressive about the value of Gold Coast waterways that very few others do. It relates to a group of visitors that have been flocking here longer than any other and from just about as far away as you can come.

Those visitors are waterbirds. They prefer to keep a low profile, that's why not many people know about them. But Bob is onto them.

There is one in particular called the Bar-tailed Godwit. Funny name, incredible story. This bird flies non-stop from the Arctic for 10 days to get here. It travels 10,000 km along an ancient flight path. This is the longest migration of any creature in the world. These godwits stay up to eight months of the year on the Gold Coast, hanging out and feeding, before heading back north again to breed.

Bob knows when they are preparing to leave. In late autumn, they change colour into breeding plumage and then they wait for the cool change to bring their tail wind. One day Bob will see them, the next day they are gone.

As Bob says:

“The birds that migrate need every ounce of energy to make their journey.”

That is why it is so important they can live peacefully while they are here.

One of the most important havens for the godwit is Curlew Island. Don't worry: if you haven't heard of it, you are not alone. It wasn't even officially recognised until very recently.

Bob became aware of the island in 2013. It was during his first shift as a radio operator with Volunteer Marine Rescue when he found himself looking out over the water at an island he had never noticed before, and saw it was covered in waterbirds. He was over in his tinny the very next day to do a count, and has been doing so regularly ever since.

It was Bob that got the island named in fact. It wasn't even properly recognised before that.

Bob, like many others in the huge and growing international bird watching fraternity, travels interstate and around the world to see birds.¹⁰ So he was thrilled to learn that there is in fact a wonderful collection of waterbirds right here at home on the Gold Coast.

While Bob concedes that bird watching tourism is unlikely to be a major economic driver, he thinks there is still something pretty special on offer:

“You are never going to compete with beer batter and bikinis, but if you have got the bird that flies the longest distance of any creature on earth, right here in your midst – that must mean something.”

Along with the Bar-tailed Godwit, the island hosts populations of many other species including sandpipers, plovers, whimbrels, stilts, terns and oystercatchers. One of the most of significant birds that inhabit the island is Eastern Curlew. The Eastern Curlew is the largest of all the world's shorebirds and is listed as critically endangered under the EPBC Act.

Bob is concerned about the future for these special birds. According to Bob, Curlew Island is the most important roost habitat of the Broadwater. Yet, there are no protections in place.

For Bob, special places of natural beauty like Curlew Island, provide an important contrast to the built up environment which surrounds it:

“It is a place where people are able to enjoy peace as opposed to the hustle, bustle and the traffic found on the mainland.”

¹⁰ <http://www.responsibletravel.org/docs/Market%20Analysis%20of%20Bird-Based%20Tourism.pdf>

While Bob sees the value in protecting nature, for nature's sake, he also observes that the natural values of Gold Coast waterways are catalysis for the economic activity which occurs around them. His concern is that if the natural values of waterways are not maintained, all the other uses which depend on these natural values may decline as well.

His view is that in regards to Curlew Island:

“A few simple controls here would make this place a whole lot healthier”

There was another name floated for Curlew Island – Tragedy Island. With the likes of Bob Westerman involved, there is hope the story of Curlew Island remains one of wonder and delight, rather than tragedy.

Short Version:

This is Bob Westerman. Bob knows something pretty impressive about the value of Gold Coast waterways that very few others do. It relates to a group of visitors that have been flocking here longer than any other and from just about as far away as you can come.

Those visitors are waterbirds. They prefer to keep a low profile, that's why not many people know about them. But Bob is onto them.

There is one in particular called the Bar-tailed Godwit. Funny name, incredible story. This bird flies non-stop from the Arctic for 10 days to get here. It travels 10,000 km along an ancient flight path. This is the longest migration of any creature in the world. These godwits stay up to eight months of the year on the Gold Coast, hanging out and feeding, before heading back north again to breed.

One of the most important havens for the godwit is Curlew Island.

For Bob, special places of natural beauty like Curlew Island, provide an important contrast to the built up environment which surrounds it:

“It is a place where people are able to enjoy peace as opposed to the hustle, bustle and the traffic found on the mainland.”

Along with the Bar-tailed Godwit, the island hosts populations of many other species including sandpipers, plovers, whimbrels, stilts, terns and oystercatchers. One of the most of significant birds that inhabit the island is Eastern Curlew. The Eastern Curlew is the largest of all the world's shorebirds and is listed as critically endangered under the EPBC Act.

Bob is concerned about the future for these special birds. According to him, Curlew Island is the most important waterbird roost of the Broadwater. Yet, there are no protections in place.

Appendix 6 – Case Study Profile: Gold Coast International Boat Show And Marine Expo

Please note: this story has been written with verbal delivery in mind. There are two version: full version (about 600 words – see below), and short version (300 words – see below, plus main body of report).

March 2017



Event managers, Emma Brown and Andrew Mills, fresh from hosting 23,000 visitors and 350 exhibitors over three days at the 2017 Gold Coast International Boat Show and Marine Expo (Photo: NCEconomics)

Full Version:

This is Emma Brown and her colleague Andrew Mills. Emma has been running the Gold Coast International Boat Show and Marine Expo since it started back in 2011.

If Emma and Andrew look a little weary in this photo, it's for good reason. They had just wrapped up the 2017 Expo. It ran for three days and had 23,000 visitors. While a large percentage of those who attended were locals, plenty came from interstate and overseas as well. There were over 350 marine brands on display, across 3km of exhibition space.

Both Emma and Andrew are very passionate about their job and the boating industry, and when you learn about their individual backgrounds it is not a surprise why.

Emma was first taken on a boat at three days old and exposed to the boating industry from an early age. Says Emma:

“I grew up on the water – I had my boat licence before my car licence; I could drive a tender before I could tie my shoelaces.”

Andrew grew up by the Murray River. The river was 50 m from the back door and he was always down there – on boats, fishing and skiing. Andrew now lives by the water here in the Gold Coast and says that there is activity all times of day and night – from early morning rowing, to midnight fishing. Andrew moved to the Gold Coast eight years ago, but it wasn't until he got involved with the Expo that he knew anything about the Coomera River.

According to Emma, this is a common story. She says many locals visiting the Expo for the first time are surprised to learn that there is a river in Coomera. Or anything beyond Dreamworld for that matter.

When in fact, Coomera is home to the biggest marine precinct in Australia. The precinct currently hosts over 60 individual businesses, employing an estimated 2500 people.

Emma says that being beside the Coomera River is a crucial element of the Boat Show's success. They run on-water activities as part of the event, where visitors can sea trial a range of vessels. It allows visitors to immerse fully in the boating experience – to see how the boats float in the water, to feel how they move. Their intent is to showcase all facets of the boating industry.

Emma points out that there are also significant economic flow-on benefits from the show:

“Visitors come here from interstate and internationally specifically for our boat show and while they are here they spend money on accommodation, dining and on having fun.”

From Emma's perspective, waterways and boating are a very big part of the Gold Coast lifestyle, and as such need to be well managed. She would like to see improvements in terms of access, traffic management and pollution, for example. Says Emma:

“The Gold Coast is known for its waterways – we should be keeping them clean and healthy.”

Emma and Andrew see a real sense of confidence and optimism within the industry. Following the 2017 show, for example, one of their exhibitors had 18 months' worth of backorders in place for one of their boats. Like many in the industry, there is not much time for Emma and Andrew to rest. No sooner have they wrapped up one year's show, than they have to start preparing for the next.

SHORT VERSION:

This is Emma Brown and her colleague Andrew Mills. Emma has been running the Gold Coast International Boat Show and Marine Expo since it started back in 2011.

The photo was taken just after the 2017 Expo. It ran for three days and had 23,000 visitors. While a large percentage of those who attended were locals, plenty came from interstate and overseas as well. There were over 350 marine brands on display, across 3km of exhibition space.

Both Emma and Andrew are very passionate about their job and the boating industry, and when you learn about their individual backgrounds not a surprise why.

Emma was first taken on a boat at three days old and exposed to the boating industry from an early age. Says Emma:

“I grew up on the water – I had my boat licence before my car licence; I could drive a tender before I could tie my shoelaces.”

In Emma's experience, many locals visiting the Expo for the first time are surprised to learn that there is a river in Coomera. Or anything beyond Dreamworld for that matter. When in fact, Coomera is home to the biggest marine precinct in Australia. The precinct currently hosts over 60 individual businesses, employing an estimated 2500 people.

Emma says the intent of the Expo is to showcase all facets of the boating industry. She also points out that there are also significant economic flow-on benefits from the show:

“Visitors come here from interstate and internationally specifically for our boat show and while they are here they spend money on accommodation, dining and on having fun.”

Emma and Andrew see a real sense a confidence and optimism within the industry. Following the 2017 show, for example, one of their exhibitors had 18 months' worth of backorders in place for one of their boats.

Attachment D

Consultation Plan

Appendix 7 – Consultation

Following is the list of people the project team met with during the consultation phase of the study, including the organisation are from and the date of the meeting:

Contact	Organisation	Date
Greg Turner	Maritime Safety Queensland	1 st February 2017
Glen Jackson	Gold Coast Waterway Authority	1 st February 2017
Leesa Dean	Gold Coast Waterway Authority	1 st February 2017
Martin Winter	Gold Coast Tourism Association	1 st February 2017
Shannon Hunt	Gold Coast City Council	1 st February 2017
Darren Ford	Gold Coast City Council	1 st February 2017
Naomi Edwards	Local resident and member of various community groups	2 nd February 2017
Darren Scott	Gold Coast City Council	2 nd February 2017
Steve Sammes	Gold Coast Marina and Shipyards	2 nd February 2017
Bob Westerman	Local resident and bird watcher	21 st March 2017
Emma Brown	Gold Coast International Boat Show and Marine Expo	21 st March 2017
Andrew Mills	Gold Coast International Boat Show and Marine Expo	21 st March 2017