EarthCheck

# Bribie Island National Park and Recreation Area: Sustainable Visitor Capacity and Management Study

## Technical Appendices

June 2022

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### Disclaimer

*The information and recommendations provided in this document are made on the basis of information available at the time of preparation and the assumptions outlined throughout the document. While all care has been taken to check and validate material presented in this report, independent research should be undertaken before any action or decision is taken on the basis of material contained in this report. This report does not seek to provide any assurance of project viability and EarthCheck accepts no liability for decisions made or the information provided in this report.*

# 1. Introduction

This document contains a consolidated summary of detailed research conducted during the Sustainable Visitor Management and Carrying Capacity Study (SVCM) for Bribie Island National Park and Recreation (BIRA), including reports of the community, permit holder and business & tourism surveys. Subject matter is incorporated under a series of individual appendices.

# Appendix 1: Key issues emerging from project research

**User Demand**

- A consistent trend of growing day visitor and camping usage at BIRA, particularly at Ocean Beach/Lagoons and Fort Bribie.
- How the area is used – surveys suggest that 4WD use, camping, scenic drive, fishing, swimming are the main activities/drivers of demand.
- Identification of which visitor and resident groups are using the area. There are a wide range of users from south-east Queensland (SEQ) postcodes, but the area has become dominated by a younger demographic for day visitors and camping. There has been strong feedback from stakeholders that current types/scale of activity is not consistent with a National Park setting. High representation by this particular demographic is thought to be a principal reason for growing behavioural issues.
- Peak demand is not limited to public and school holidays at BIRA – many weekends generate a similar range of management challenges.
- Some evidence from stakeholder surveys of conflicts between user groups and expectations.
- Usage is predominantly an SEQ recreation issue rather than attracting tourism.

**How is BIRA valued by stakeholders/ what is important?**

- Consensus across community, business and permit holder stakeholder groups is that conservation and enhancement of environments and habitats, followed by maintaining community access for leisure/immersion in nature are the most important attributes. Economic attributes were ranked lowest.
- Conservation stakeholders have expressed a range of concerns, derived from visitor behaviour and peak period visitor numbers. Significant concerns were expressed regarding:
    - Compaction in the intertidal zone which impacts on invertebrates and other species.
    - Damage to dunes/foredunes habitats.
    - Turtle nesting/hatching.
    - Traffic volume impacting on species on the Island's roads.
    - Bird life (particularly at the northern end of the island).
    - Marine life, associated with boat and jet skis, including Ocean Beach and the Pumicestone Passage side of the Island.
- Consensus across Queensland Parks and Wildlife Service (QPWS) internal stakeholders that the current situation is not sustainable and that management actions are required to achieve a more appropriate balance across conservation, cultural, social, and economic objectives. Staff teams have noted that BIRA is under particular pressure from location and local population growth, and that hard decisions may need to be taken in the longer term regarding managing the setting to an appropriate level.
- Strong sentiment was noted about the importance of Indigenous heritage from stakeholder surveys.
- Business input is broadly in line with community and permit holders regarding capacity and management issues. Businesses/ Commercial Tourism Operators (CTOs) do not contribute significantly to the capacity/volume of visitors issue.

**Environmental issues**

- Annual QPWS site health checks indicate a growing number of serious concerns noted at sites - littering, bush toileting, dune damage etc. Impacts are driven by both behavioural issues and visitor volumes.

**Behavioural Issues**

- Stakeholder surveys indicate universal recognition for a range of behavioural issues at peak times. Sentiment from project research as a whole can be described as pro-management in sentiment, with an overall recognition that management action is required, and being supportive of a range of potential management options, including initiatives to address visitor behaviour, and examining capacity limits for daily visitor/vehicle numbers at peak periods.
- Strong recognition from stakeholders on a range of traffic and non-traffic related safety and behavioural issues, noise, user conflict, speeding, dangerous driving etc at peak times.

**Compliance Issues**

- Review of the number plate recognition camera system indicates significant levels of non-compliance (VAPs).
- Consensus among stakeholders that measures that ensure compliance need to be implemented as part of overall sustainable management. Ideally, technological improvements in the camera system should allow automated issuing of penalties.

**Capacity and Visitor Volumes**

- Strong QPWS staff, community, permit holder and business recognition of capacity issues/ too many visitors, particularly at peak times for the area as a whole, and particularly at Ocean Beach/Lagoons, Ocean Beach Campground and Fort Bribie. The impact of peak volumes is perceived to be felt in terms of local amenity, visitor experience and degradation of habitat/conservation values. The beach access point at Woorim, where backlogs of traffic and associated behavioural issues are readily visible, although these issues can be prevalent outside peak weekends – the entrance at peak daily times function as a natural pinch point.

**Support for management actions**

As a whole, stakeholder sentiment gathering during the study, when presented alongside other management data, provides a credible basis to consider a range of additional measures which address capacity, usage, visitor management issues, and address inappropriate visitor behaviour such as dangerous driving, speeding, littering etc.) From the perspective of achieving an appropriate balance across economic, environmental, cultural, and social factors.

# Appendix 2: Summary of Community, Business and Permit Holders Surveys

This section of the report presents a summary of survey responses, highlighting areas where there was consensus or differentiation in views across the three stakeholder groups[1]. Individual reports for the three surveys provide additional detail.

The results of the three surveys can be described as pro-management in sentiment, with strong recognition of the values and attributes of BIRA, an overall recognition that management action is required, and being supportive of a range of potential management options, including examining capacity limits for daily visitor/vehicle numbers at peak periods.

**Survey Timing**

For a 4-week period over September and October 2021, three surveys were distributed to local stakeholders:

- Bribie Island (BIRA) User Survey (vehicle and camping permit holders over the previous 2 years).
- Bribie Island (BIRA) Business and Tourism Survey (Commercial Tour Operators (CTOs) in the area and broader tourism business community); and
- Bribie Island (BIRA) Community Survey (residents – Moreton Bay and Bribie Island areas).

The surveys have been instigated to fill gaps in evidence required to develop well-informed recommendations on carrying capacities and visitor management options.

The surveys cover overall sentiment towards Bribie Island National Park and Recreation Area, as well as perspectives on several identified sites:

- Ocean Beach/Lagoons
- Fort Bribie
- North Spit
- Ocean Beach Campground
- Poverty Creek Campground

**Survey Response Levels**

Across the three surveys, a total of 2,058 responses were received:

- Community survey 1,608.
- Business and tourism survey 39; and
- Permit holder/user survey (camping and VAP permit holders from the previous 2 year period) 411.

**Survey Questions**

The surveys aimed to identify stakeholder values and views regarding current visitation and sentiment towards visitor management options and priorities.

The surveys had four principal components:

[1] NB: The Business and Tourism Survey has a distinct set of questions – comparison with user and community surveys has been provided where relevant.

*Table 1 - The four key areas within each of the three different surveys.*

| | **Community** | **Business and Tourism** | **User** |
|---|---|---|---|
| **Section 1** | About you | About your business | About you |
| **Section 2** | Your visits to Bribie Island National Park and Recreation Area. | Your thoughts on current visitor activity in Bribie Island National Park and Recreation Area. | Your visits to Bribie Island National Park and Recreation Area. |
| **Section 3** | Your thoughts on current visitor activity in Bribie Island National Park and Recreation Area. | Your thoughts on future management of visitor activity in Bribie Island National Park and Recreation Area. | Your thoughts on current visitor activity in Bribie Island National Park and Recreation Area. |
| **Section 4** | Your thoughts on future management options for Bribie Island National Park and Recreation Area. | Your thoughts on Business opportunities in Bribie Island National Park and Recreation Area. | Your thoughts on future management options for Bribie Island National Park and Recreation Area. |

**Purpose of this document**

This summary document provides an overview of survey responses, highlighting areas where there was consensus or differentiation in views across the three stakeholder groups[2]. Individual reports for the three surveys provide additional detail.

The results of the three surveys can be described as pro-management in sentiment, with strong recognition of the values and attributes of Bribie Island National Park and Recreation Area, an overall recognition that management action is required, and being supportive of a range of potential management options, including examining capacity limits for daily visitor/vehicle numbers at peak periods. There is a stronger degree of consensus across the three respondent groups than envisaged pre-survey.

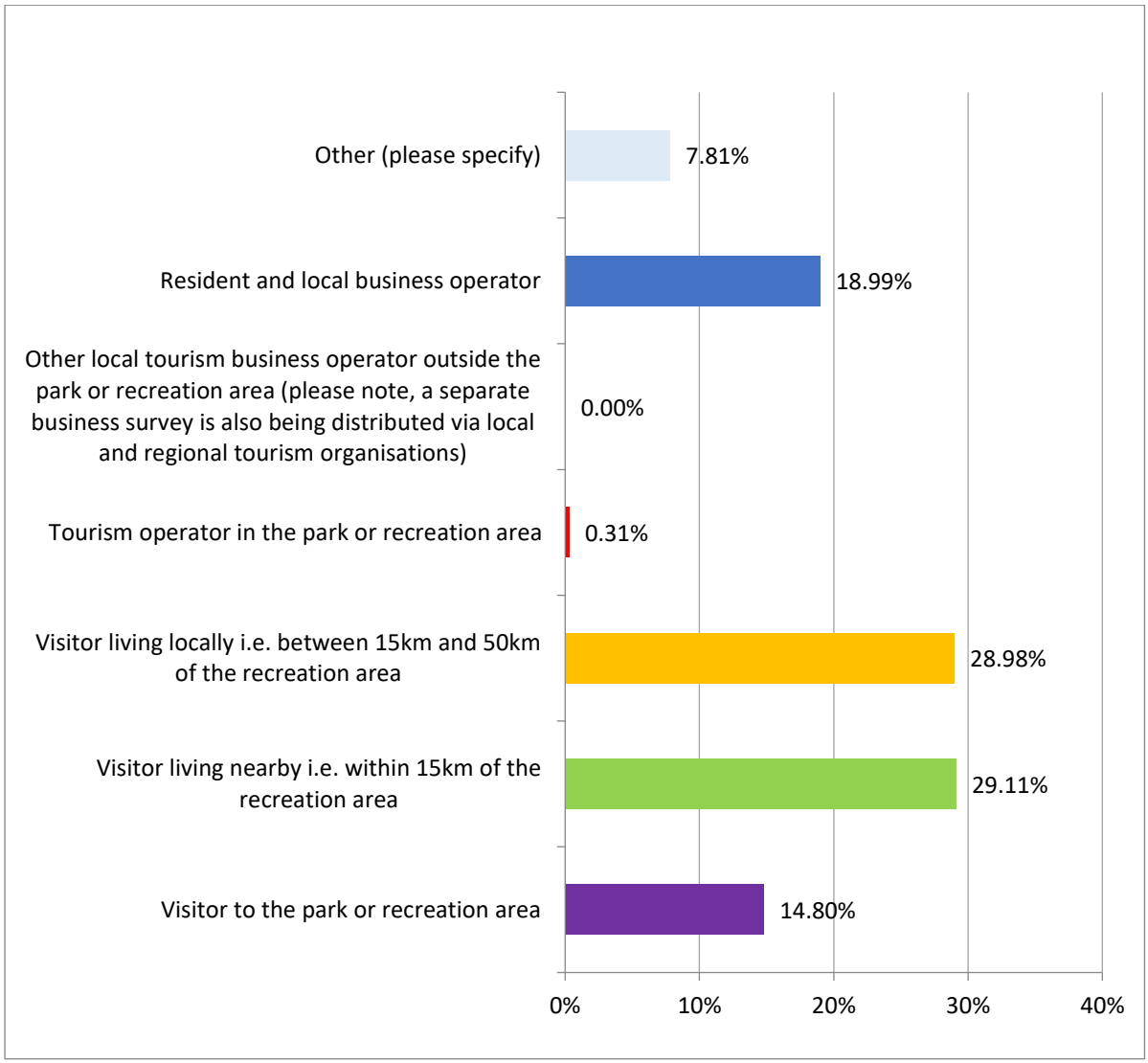
[2] NB: The business and tourism survey has a distinct set of questions – comparison with user and community surveys has been provided where relevant.

## SECTION 1 – ABOUT YOU

### Q1

**Description -** The first question in each survey seeks information on the type of respondent completing the survey.

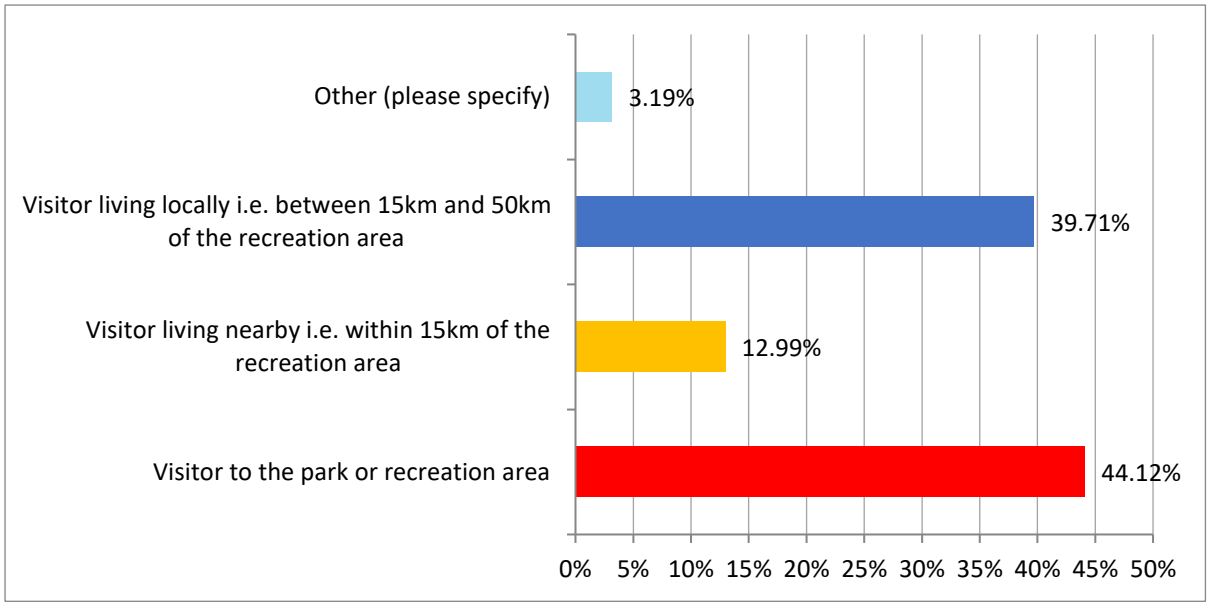
**Community Survey** - Q1. *Please select the category that best describes you.*




Of the 7.81% responses that selected 'Other' as the category that best suits them, there were 125 responses identifying four 'new' categories:

- Residents
- Environmental groups
- Volunteers
- Holiday house owners

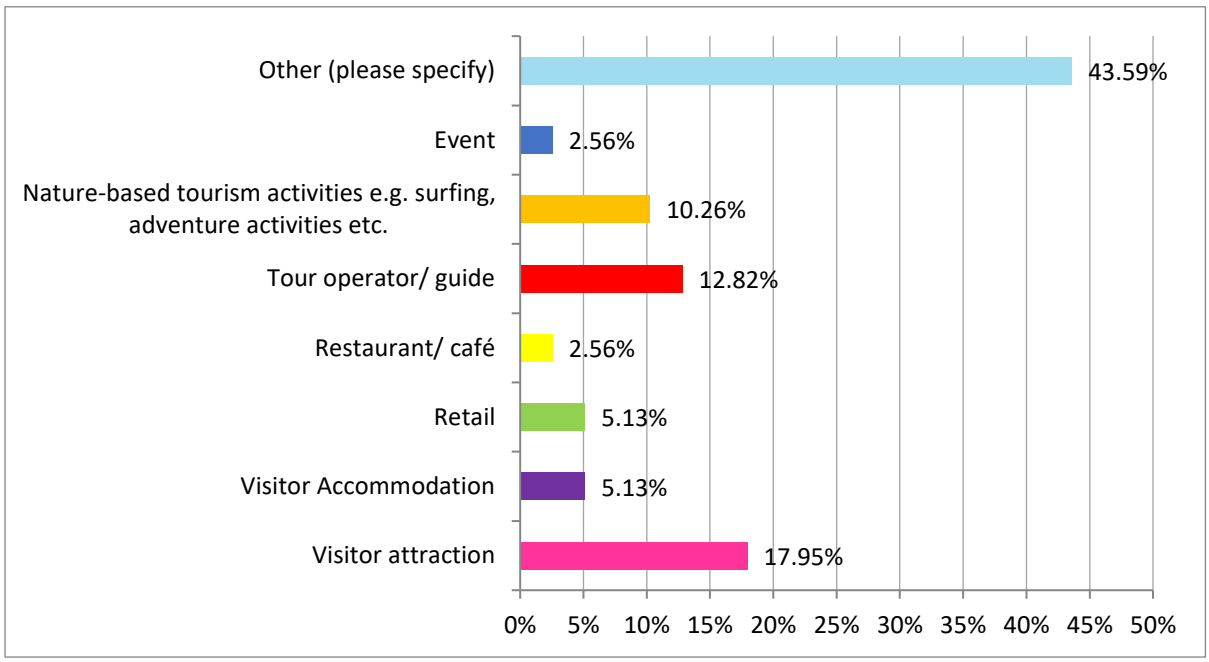
**User Survey** - Q1. *Please select the category that best describes you.*




Of the 3.19% users who selected 'Other' as the category that best suits them, there were 13 responses, identifying two categories:

- Resident
- Visitors from over 50km away

**Business and Tourism Survey** - Q1. *Please select the category that best describes your business.*




Of the 43.59% responses that selected 'other' as the category which best suits them, there were 17 responses. These are recorded in *Table 2* below.

*Table 2 - The 17 responses in the "Other" category in the Business and Tourism survey.*

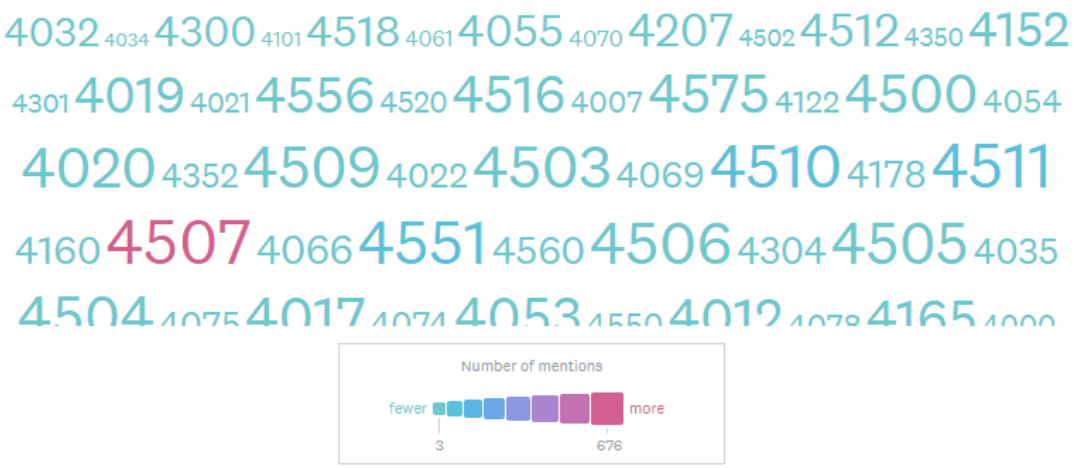
| | | | | |
|---|---|---|---|---|
| Visitor | Recreational User group | 4WD member | Camper and 4x4 driver | Local resident |
| Manufacturing | None | Resident | We are Four Wheel Drive Queensland – an association of all the 4WD clubs | Education |
| Engineering consultant | 4WD training | Financial Broker | Manufacturing | Finance |
| Outdoor Education Guide | 4WD training | | | |

**Overall Response:** Between the user and the community survey it is clear that the main people who are completing the surveys are visitors to the park (between 5 and 50km) and residents, which has been identified via the 'other' category option. In the business and tourism survey there is a large mix of business types, apart from the "Other" category (outlined in *Table 2)* the most common business types were: Visitor attraction (17.95%), and Tour guide (12.82%).

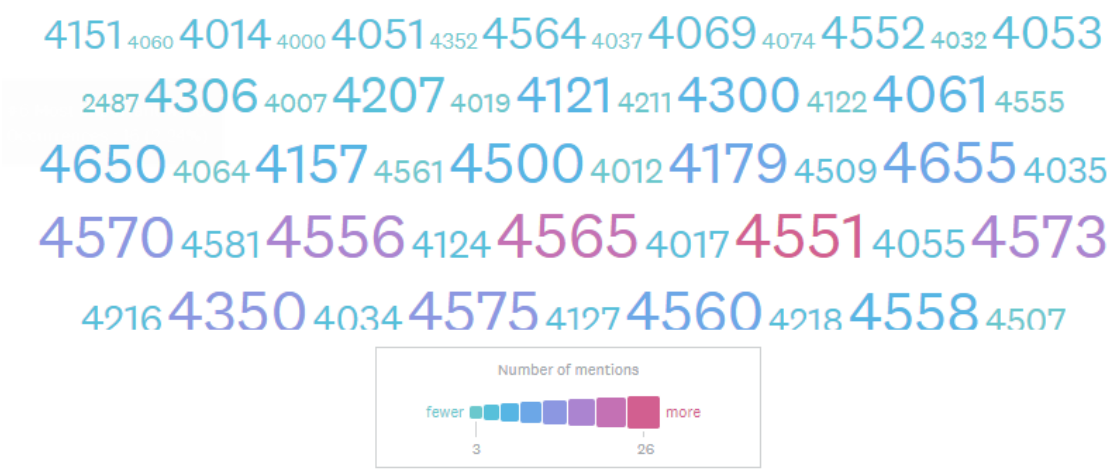
## Q2

**Description –** A respondent location question was asked in all three surveys.

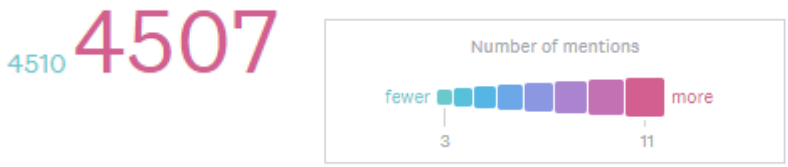
**Community Survey** - Q2. *What is the post code for your normal place of residence?*



**User Survey** - Q2. *What is the post code for your normal place of residence?*




**Business and Tourism Survey** - Q2. *What is the post code for your business's principal location?*



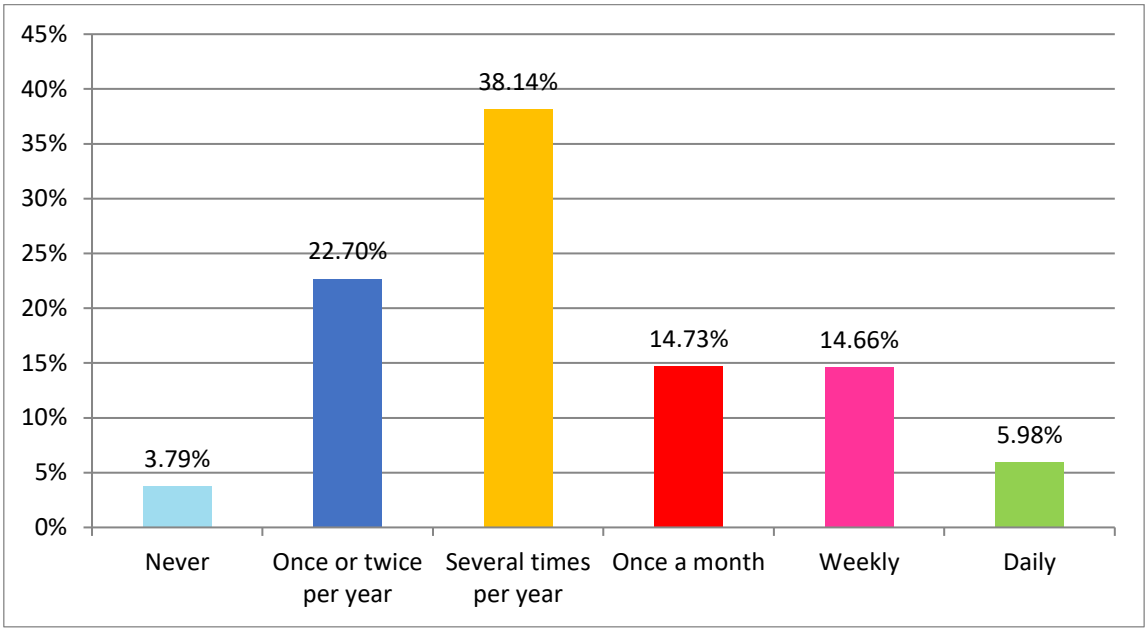

**Overview of Responses –** The community survey respondents covered a spread of responses from across the Moreton Bay and SEQ regions, with 43% of responses originating from the 4507 (Bribie Island) postcode area. The Bribie Island postcode area also had the largest number of responses for the business and tourism survey (31%) and user surveys (11%). As expected, responses from users/ permit holders came from a wider geographic area.

## SECTION 2 - YOUR VISITS TO BRIBIE ISLAND NATIONAL PARK AND RECREATION AREA

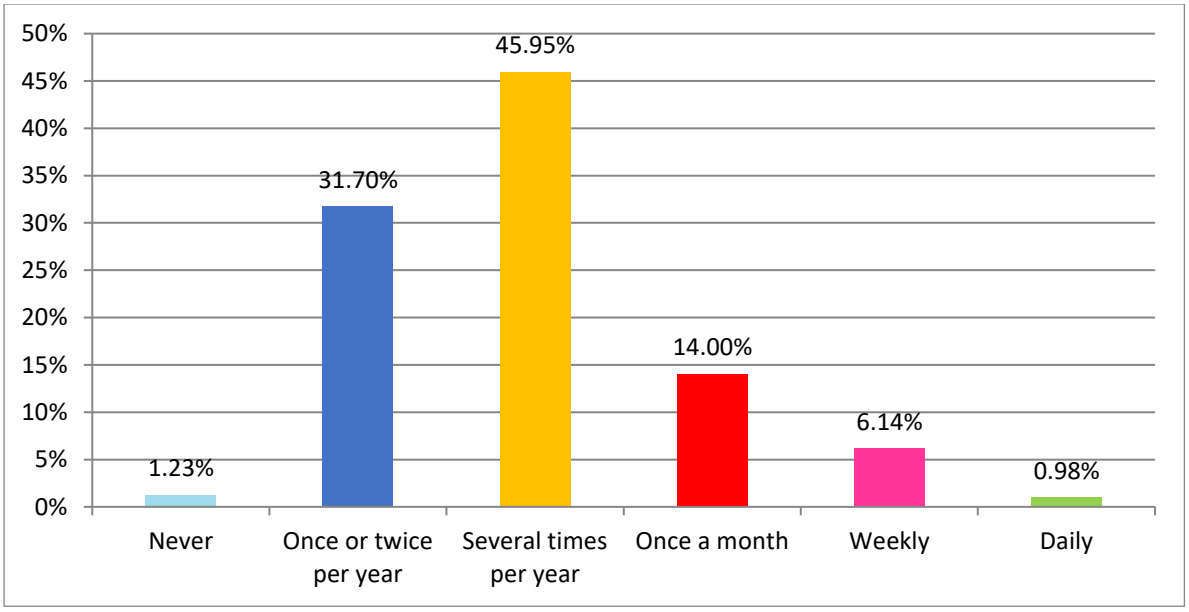
### Q3

**Description –** A visit frequency question.

**Community Survey** – *Q3. How often do you visit Bribie Island National Park and Recreation Area?*




**User Survey** – *Q3. How often do you visit Bribie Island National Park and Recreation Area?*

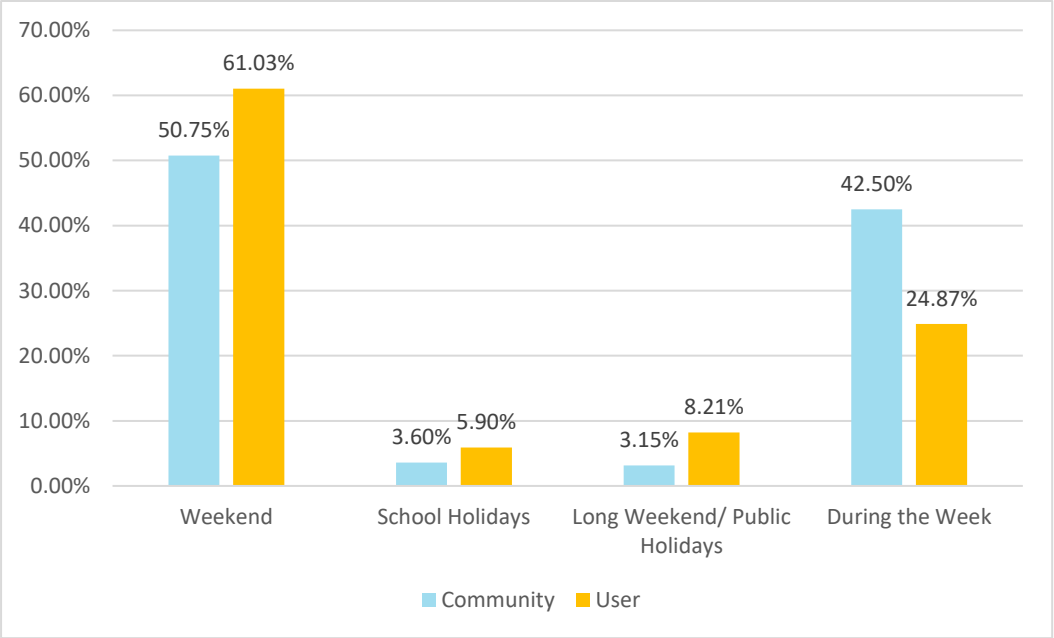



**Overview of Responses –** The surveys provided a similar profile of responses to this question. For the community survey, the largest response was visiting 'Several times per year' (38.14%) followed by 'Once or twice a year' (22.70%). Similarly, for the user survey, the largest response was 'Several times a year' (45.95%) followed by 'Once or twice per year' (31.70%).

## Q4

**Description –** This question focuses on the usual time/period of visits to Bribie Island National Park and Recreation Area.

**Community and User Survey -** *Q4. When do you usually visit Bribie Island National Park and Recreation Area? Please select the option where you visit most often.*



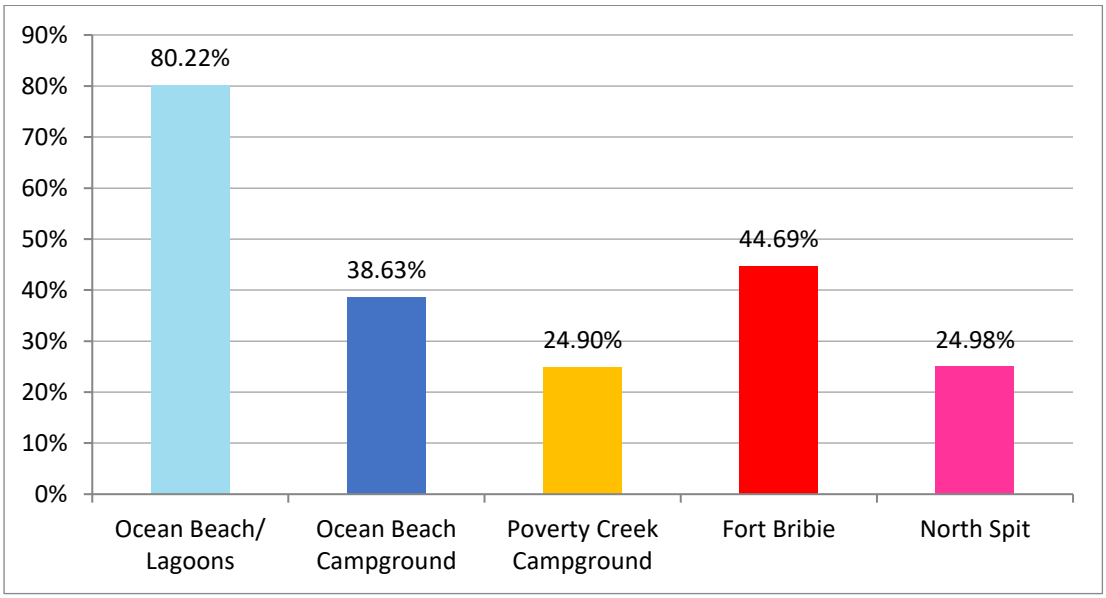

*Please note that for the ease of comparison, the Community, and the User survey results for Q4 have been combined (graph above).*

**Overview of Responses** - Both surveys had a relatively similar response profile, with the largest proportion of visitors at the weekends, followed by during the week. As expected, the proportion of community respondents noting that they visited during the week was higher than for user/permit holder survey respondents (42.5% compared with 24.87%). For both the community and the user surveys 'long weekends/public holidays' had low responses with 3.15% and 8.21% respectively. This is assumed to be because the majority of the respondents are close to the site and do not need to go during these peak times. It is likely that during the peak times, visitors from further away will visit the site.

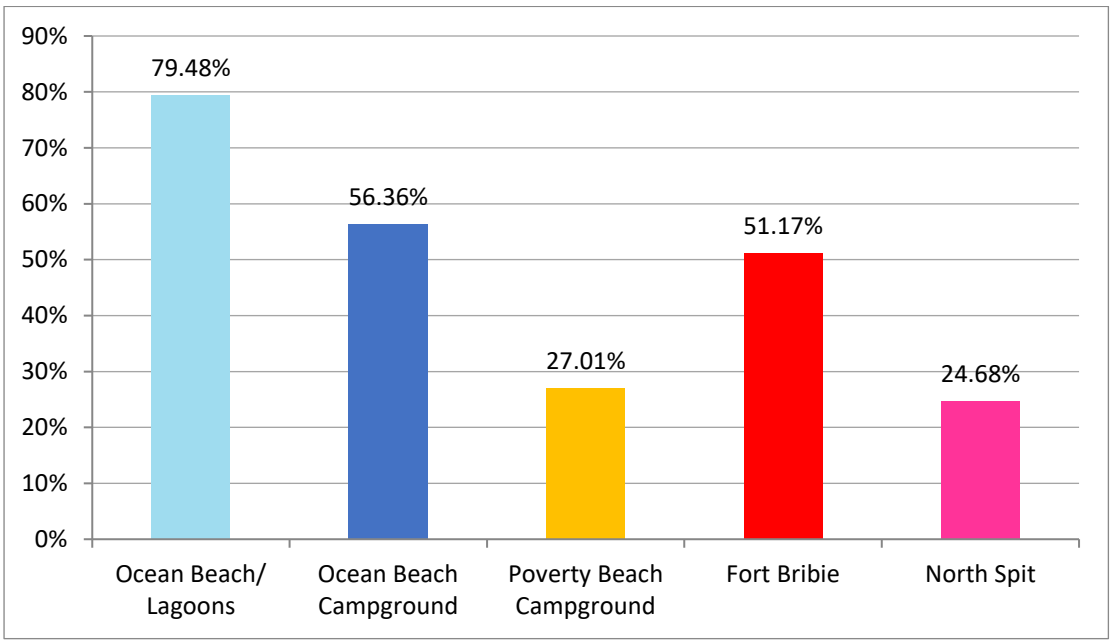
## Q5

**Description –** This question seeks information on the Bribie Island National Park and Recreation Area locations which respondents visited regularly.

**Community Survey** – *Q5. Do you regularly visit any of the following locations in Bribie Island National Park and Recreation Area? Please select all options that apply.*




**User Survey** – *Q5. Do you regularly visit any of the following locations in Bribie Island National Park and Recreation Area? Please select all options that apply.*

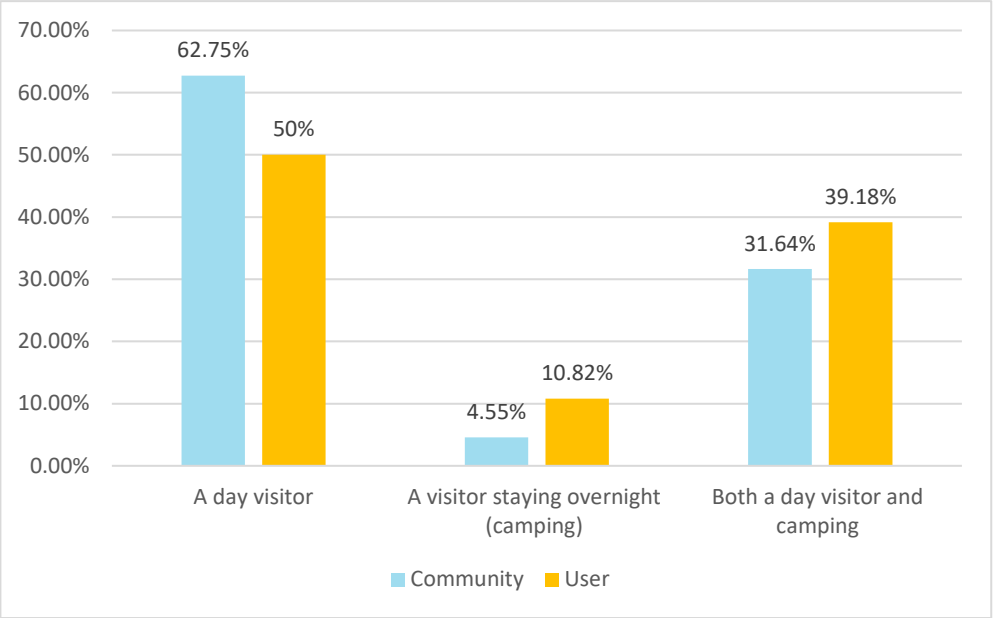



**Overview of Responses** - The community and user surveys generated similar response profiles, with Ocean Beach/Lagoons, Ocean Beach Campground and Fort Bribie being the most popular locations. As expected, campgrounds were more popular with users/ permit holders than the local community.

## Q6

**Description –** This question seeks information on whether respondents were day visitors or campers.

**Community and User (surveys) -** *Q6. When you visit Bribie Island National Park and Recreation Area, is it usually as?*



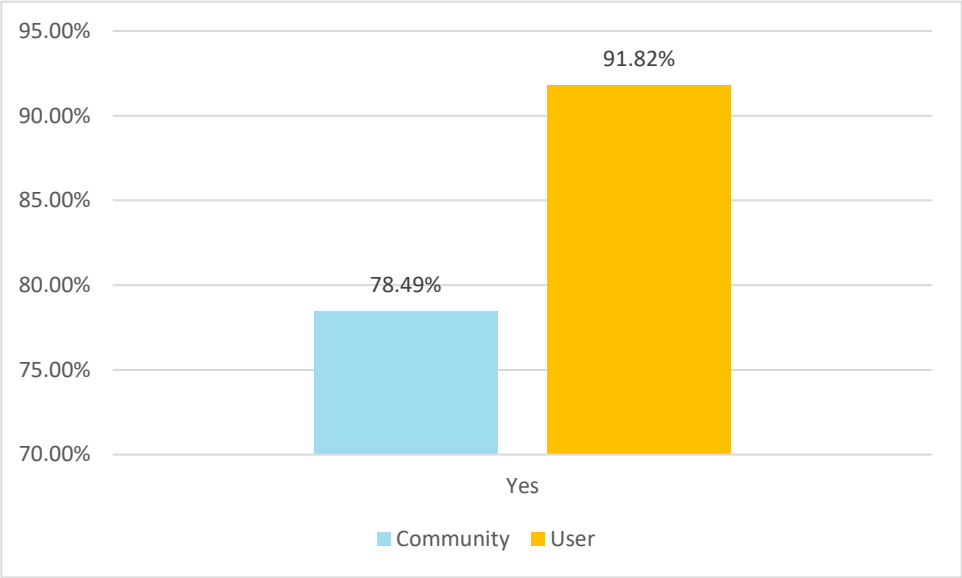

*Please note that for the purposes of comparison, the Question 6 results from the Community and User surveys have been combined into a single graph (above).*

**Overview of Responses –** The most prevalent type of respondent group in the community and user surveys was as a day visitor (62.75% for the community survey and 50% for the user survey), followed by those who visit both as day visitors and campers.

## Q7

**Description –** Awareness of beach driving speed limits.

**Community and User Survey(s) –** *Q7. Do you know the speed limits on the beach at Bribie Island National Park and Recreation Area?*




*Please note that for the purposes of comparison, the Question 7 results from the Community, and User surveys have been combined into a single graph.*

**Overview of Responses –** 78.49% and 91.82% of respondents in the community and user surveys indicated that they were aware of beach driving speed limits, with greater levels of awareness reported amongst users/ permit holders.

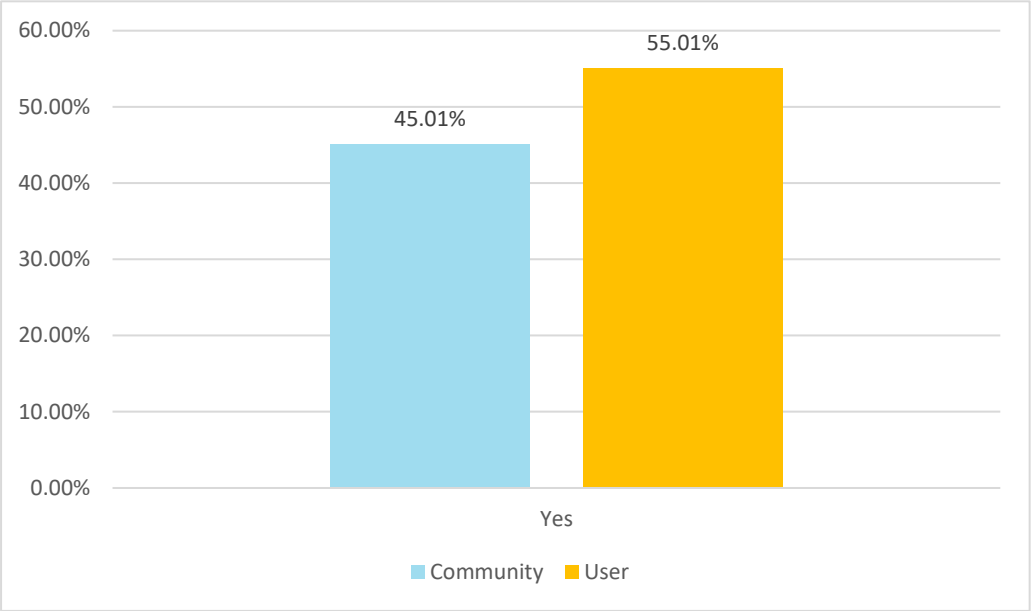
In open responses to the question, there were a number of frequently mentioned perspectives:

- Insufficient signage of speed limits/ signs not clear.
- No police enforcement has led to speed limits to be ignored. As a result, dangerous driving has become a real issue.
- Suggestion of 30km/h for lagoons and camping areas, while 50km/h is applied for other areas.
- Many respondents also noted that a camera or more police was needed to police those breaking the speed limits.

## Q8

**Description –** A question relating to increase in frequency of visits to Bribie Island National Park and Recreation Area over the previous 12-month period (COVID-19 impact).

**Community and User Survey(s) –** *Q8. Have you visited Bribie Island National Park and Recreation Area more often in the last 12 months?*



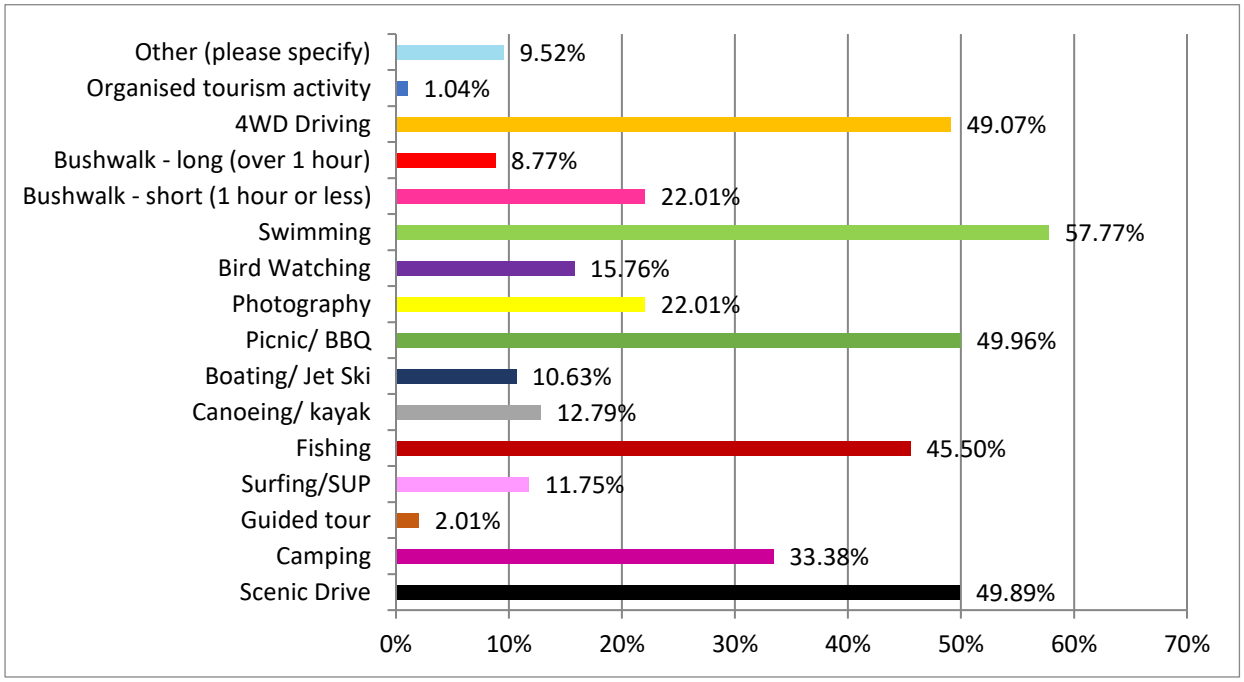

*Please note that for the purposes of comparison, the Question 8 results from the Community and User surveys have been combined into a single graph.*

**Overview of Responses –** 45.01% of community survey respondents and 55.01% of user/ permit holder respondents noted that they had visited more frequently during the previous 12-month period.

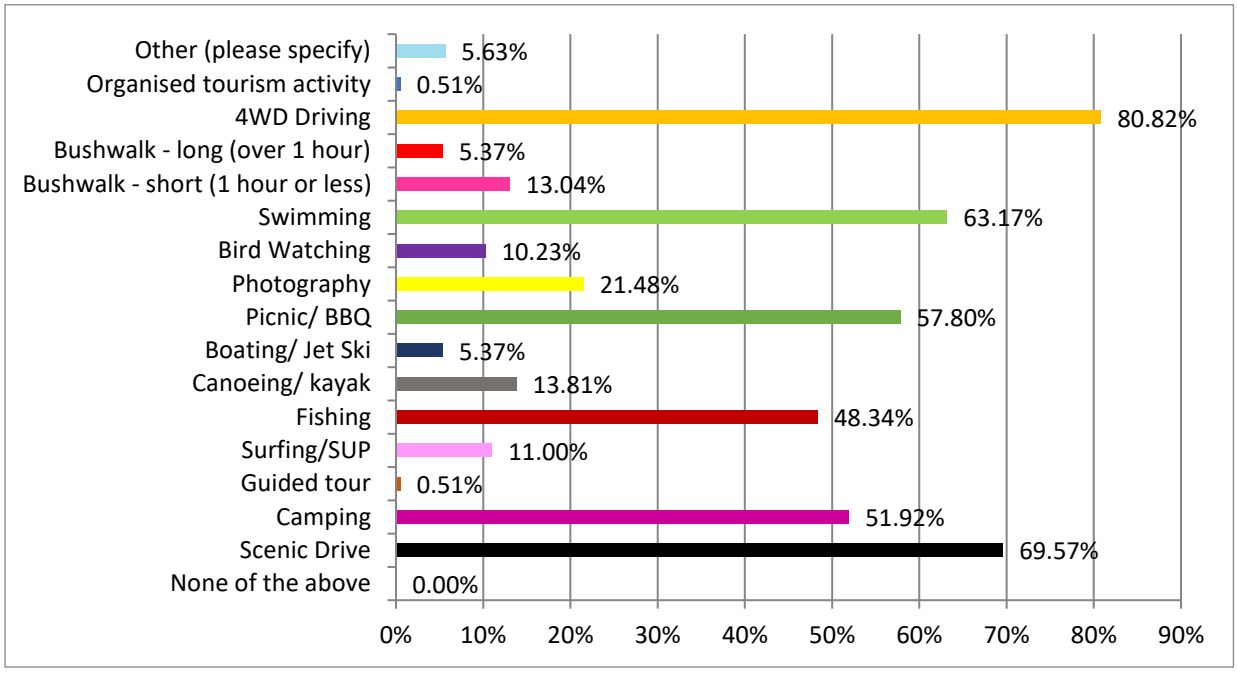
## Q9

**Description –** Principal reason for visiting Bribie Island National Park and Recreation Area.

**Community Survey –** *Q9. What are your main reasons for visiting Bribie Island National Park and Recreation Area? Please select all options that apply.*




**User Survey –** *Q9. What are your main reasons for visiting Bribie Island National Park and Recreation Area? Please select all options that apply.*



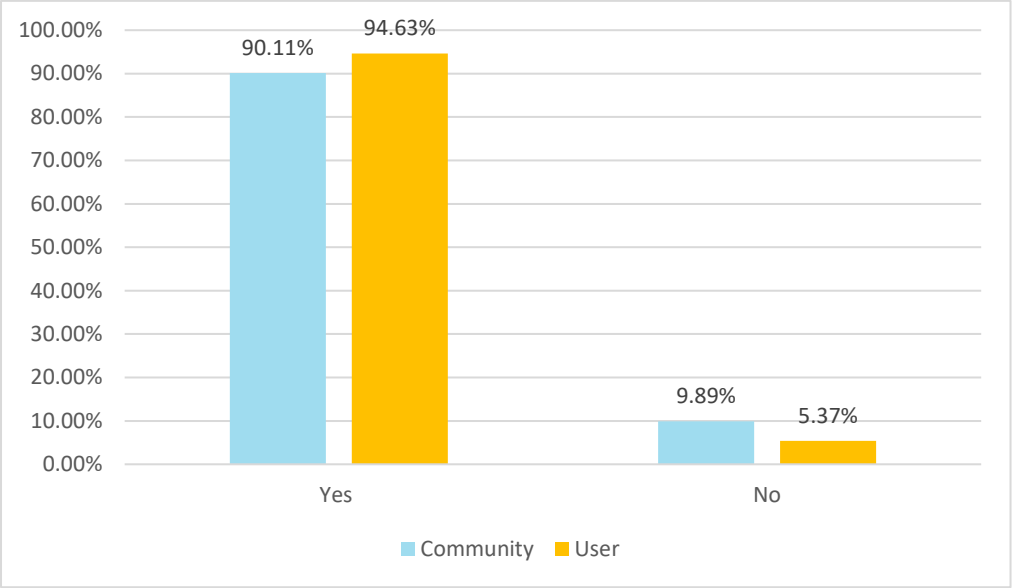

**Overview of Responses –** 4WD driving, swimming, scenic drives, picnic/BBQ and fishing are the five most popular activities among community and user/ permit holder respondents. However, the popularity of 4WD driving (80.82%) and scenic drive (69.57%) is especially prevalent in user/ permit holder responses (compared with less than 50% for both activities in the community survey).

## SECTION 3 – YOUR THOUGHTS ON CURRENT TOURISM ACTIVITY IN BRIBIE ISLAND NATIONAL PARK AND RECREATION AREA

### Q10

**Description –** A question asking respondents if they would recommend Bribie Island National Park and Recreation Area as a place to visit.

**Community and User Survey (s) –** *Q10. Would you recommend Bribie Island National Park and Recreation Area as a place to visit?*




*Please note that for the purposes of comparison, the Question 10 results from the community and user surveys have been combined into a single graph*

**Overview of Responses** – Both community and user surveys showed strong support for Bribie Island National Park and Recreation Area as a place to visit – 90.11% for the Community Survey and 94.63% for the User Survey.

Participants were given the option to comment after answering this question. In the Community Survey 193 people chose to comment and, in the User Survey 47 chose to comment. The comments were from both people who answered "Yes" and "No" The dot points below illustrate the frequently mentioned perspectives in the comment section.

- The area has been busy and overcrowded for quite some time (especially on weekends).
- Measures should be in place to restrict tourist and 4WD access.
- Disrespectful visitor behaviour (i.e., hooning, littering).
- Concerns raised regarding the overcapacity of the park.
- Booked out campsites.
- Not enough amenities (i.e., toilets, rubbish bins) to cater for the number of users.
- While recommending it as a place to visit, respondents noted a need to warn visitors of the rubbish, hoons and overcrowding, suggesting non-locals visit during the week when it is quieter.
- Insufficient toilets to meet the demand.
- Lack of rubbish bins and how rubbish is now very common everywhere on the island.

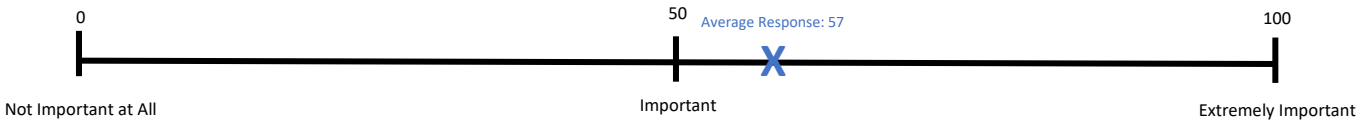
## Q11-16[3]

**Description –** The following set of questions asked respondents' views on the importance of a series of Bribie Island National Park and Recreation Area attributes/values. Respondents were asked to note their responses on sliding scale – from 'Not important at all' to 'Extremely important.'

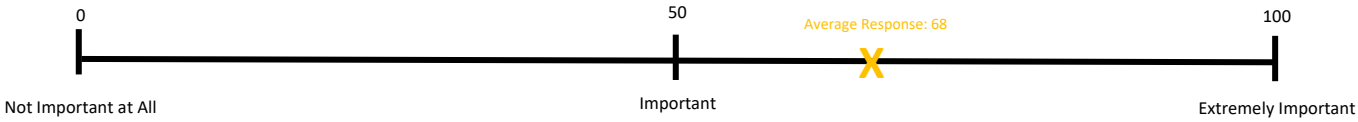
### Economic Benefits

*How important are the economic benefits to local communities generated by tourism visits to Bribie Island National Park and Recreation Area? Please use the sliding scale to select the level of importance.*

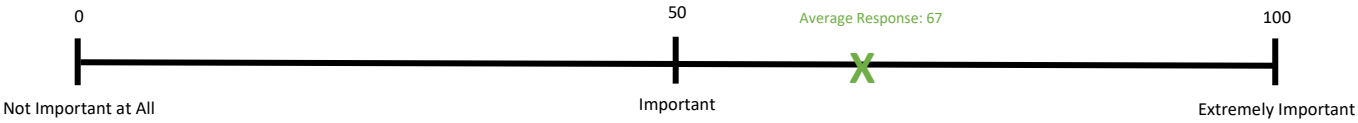
*Community Survey (Q11)*




*User Survey (Q11)*




*Business and Tourism Survey (Q3)*




**Overview of responses** – There were moderate levels of support (57-68 on a 100-point scale) for the economic benefits of tourism across the three surveys – support was higher in the user and business surveys.

Among the 8 businesses **holding a permit** to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, 5 out of 8 respondents (62.5%) rated the economic benefits as Very important to Extremely important (70-100).

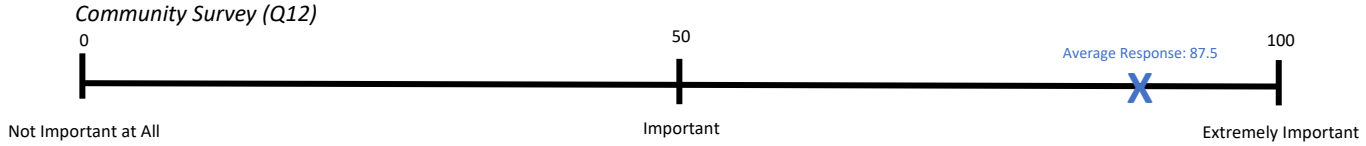
Economic benefits from tourism received the lowest levels of support/level of importance of the five attributes evaluated.

[3] For the Business and Tourism Survey, the same questions are asked but they are Questions 3 - 8

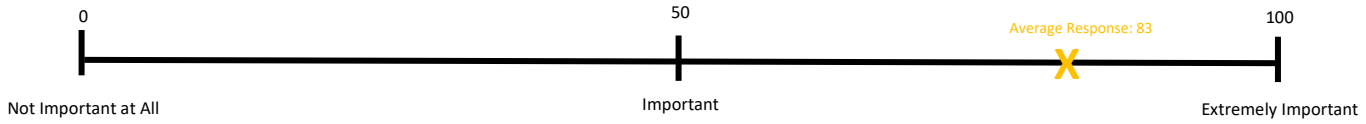
### Conservation and enhancement of environments and habitats

*How important is the conservation and enhancement of environments and habitats (such as coastal dunes, the beach etc.) in Bribie Island National Park and Recreation Area? Please use the sliding scale to select the level of importance.*

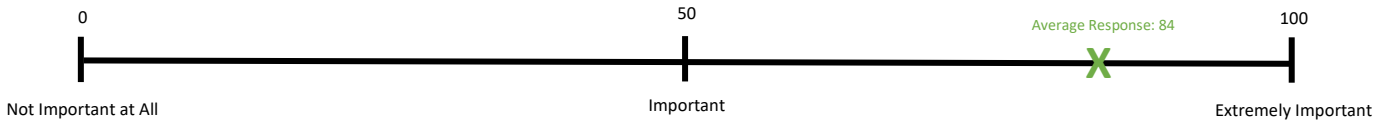
*Community Survey (Q12)*




*User Survey (Q12)*




*Business and Tourism Survey (Q4)*



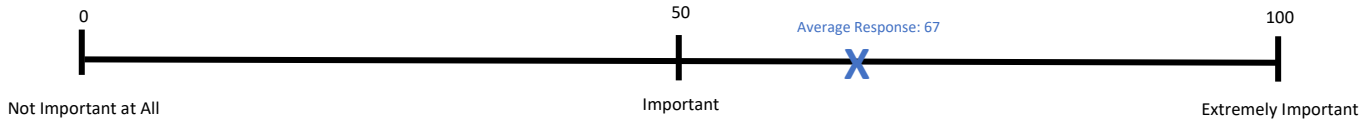

**Overview of responses -** All three surveys recorded strong support for the enhancement of the environment and habitats, with community respondents recording the strongest support at 87.5 on the range 0 (Not important at all) to 100 (Extremely important).

Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, 7 out of 8 respondents rated the conservation and enhancement of environments and habitats as Very important to Extremely important (70-100). Conservation and enhancement of environments and habitats received the highest levels of support/level of importance of the five attributes evaluated.

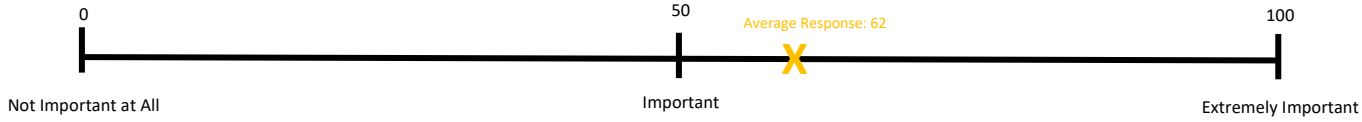
### Conservation and enhancement of First Nations people's cultural values

*How important is the conservation and enhancement of First Nations people's cultural values (e.g., Aboriginal heritage sites or sacred places) of Bribie Island National Park and Recreation Area? Please use the sliding scale to select the level of importance.*

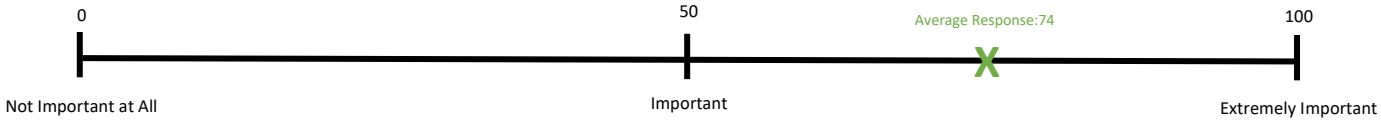
*Community Survey (Q13)*




*User Survey (Q13)*




*Business and Tourism Survey (Q5)*



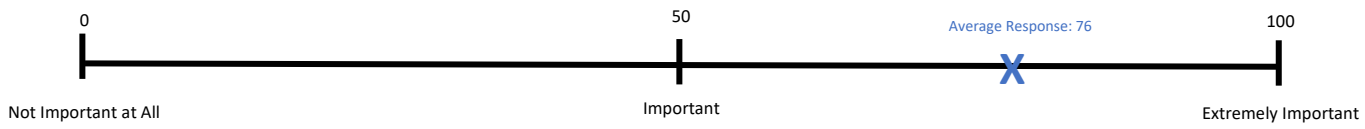
**Overview of responses –** The relative importance of Conservation and enhancement of First Nations people's cultural values and attributes values varied across the three surveys, in the range 62-74 on a scale ranging from 0 (Not important at all) to 100 (Extremely important). Business respondents recorded the strongest rating (74).

Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, 7 out of 8 respondents rated conservation and enhancement of First Nations people's cultural values as Very important to Extremely important (70-100).

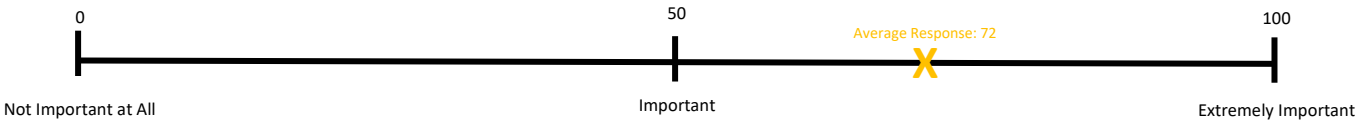
### Conservation and enhancement of modern heritage

*How important is the conservation and enhancement of modern heritage (e.g., shipwrecks or historical sites) of Bribie Island National Park and Recreation Area? Please use the sliding scale to select the level of importance.*

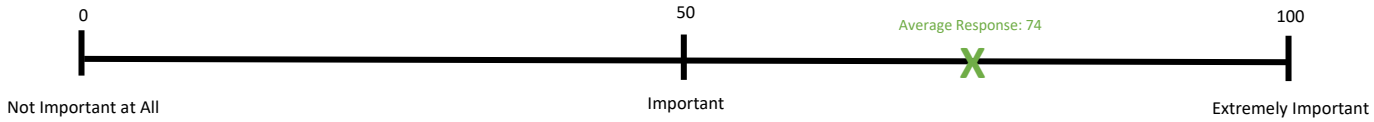
*Community Survey (Q14)*




*User Survey (Q14)*




*Business and Tourism Survey (Q6)*



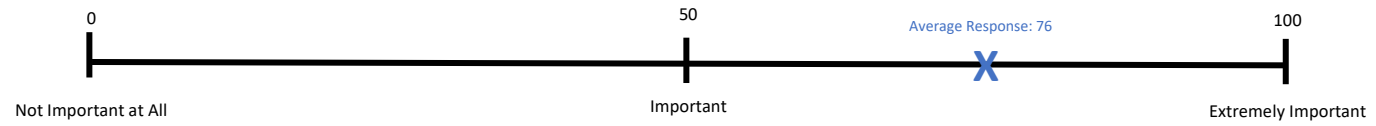

**Overview of Responses –** Responses across the three surveys were consistent (72-76) in a scale ranging from 0 (Not important at all) to 100 (Extremely important).

Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, 6 out of 8 respondents (75%) rated conservation and enhancement of modern heritage as Very important to Extremely important (70-100).

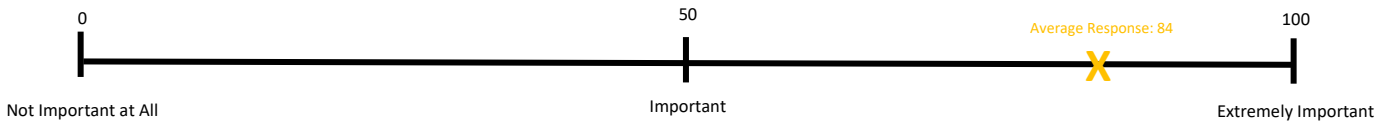
### Community access to high quality recreational opportunities

*How important is continued provision for community access to high quality recreational opportunities at Bribie Island National Park and Recreation Area? Please use the sliding scale to select the level of importance.*

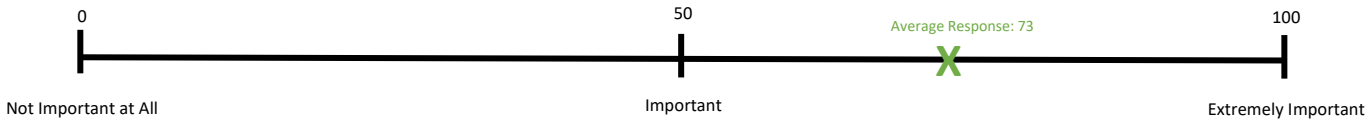
*Community Survey (Q15)*




*User Survey (Q15)*




*Business and Tourism Survey (Q7)*



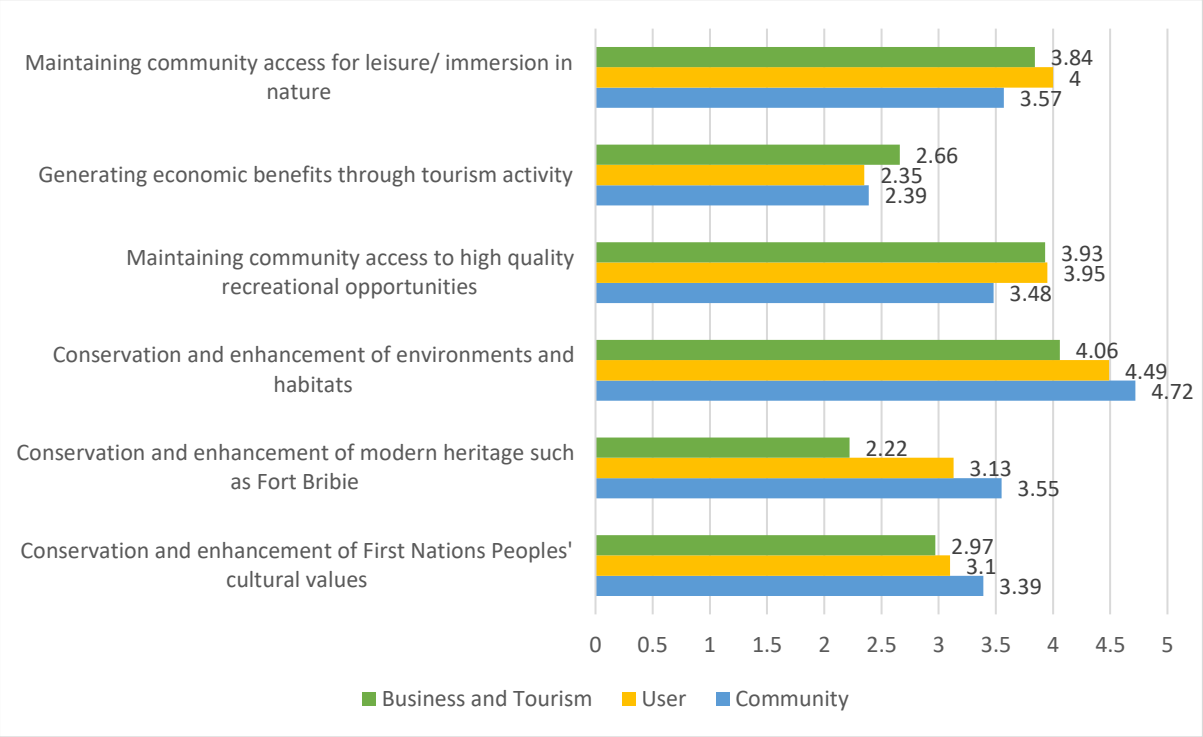

**Overview of responses -** Responses across the three surveys varied from 73-84 in a scale ranging from 0 (Not important at all) to 100 (Extremely important). Users/ permit holders rated the issue most strongly (84).

Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, 7 out of 8 respondents (87.5%) rated continued provision for community access to high quality recreational opportunities as Very important to Extremely important (70-100).

## Ranking of Attributes and Values

*Cultural, recreational, conservation and tourism/economic benefits are all parts of what makes Bribie National Park and Recreation Area a special place for communities and visitors. Please rank the following (1 being the most important to you, and 6 the least important).*

*Community Survey (Q16), User Survey (Q16) and, Business and Tourism Survey (Q8)*




*For the purpose of comparison, the responses for this question have been combined for the Community, User and Business and Tourism surveys.*

**Overview of responses –** Across all three surveys, conservation and enhancement of environments and habitats is perceived as the most important aspect of what makes Bribie Island National Park and Recreation Area a special place (i.e., average ranking of 4.72 out of 6 in community survey, 4.5 in the user survey and 4 in the business survey). Maintaining community access for leisure/ recreation in nature and maintaining community access to high quality recreational opportunities also both scored well in the user/ permit holder survey.

Generating economic benefits through tourism activity is considered as least important across all stakeholder groups (2.4-2.7 range).

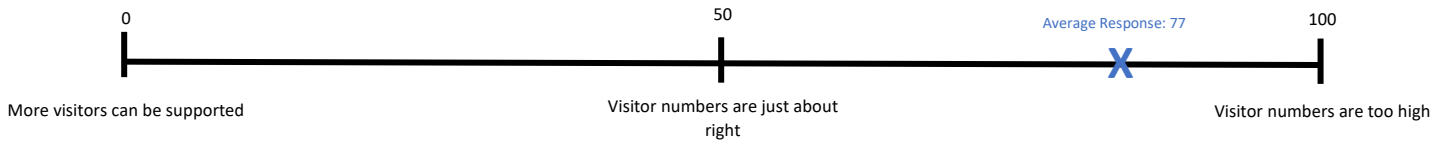
**Q17[4]**

[4] For the Business and Tourism Survey, this is Question 9

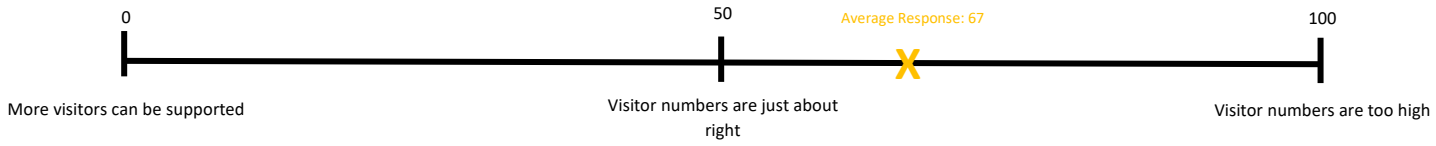
**Description –** The question seeks respondents' views on how busy Bribie Island National Park and Recreation Area is during peak times.

Q. *Regarding the level of visitation to Bribie Island National Park and Recreation Area at peak times (busy weekends, public holiday, school holidays etc.). Please use the sliding scale to identify what you think the current situation is regarding peak visitor numbers.*

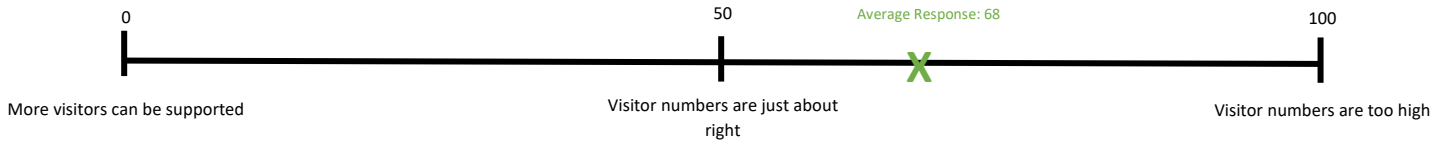
*Community Survey (Q17)*




*User Survey (Q17)*




*Business and Tourism Survey (Q9)*

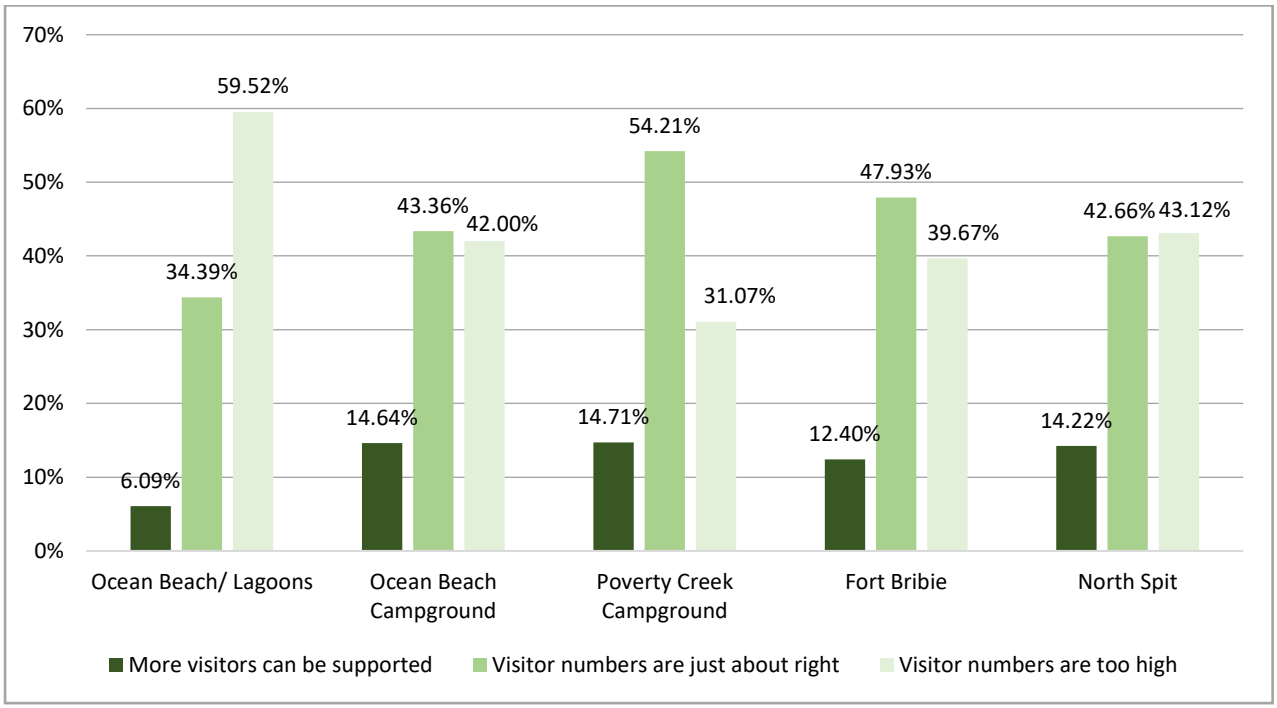



**Overview of Responses –** All three stakeholder groups recorded responses ranging from 67-77, indicated an overall response between 'Just about right' and 'Visitor numbers are too high'. Community respondents felt most strongly with an average of 77 on a 100-point scale, with the lowest response from users/ permit holders (67).

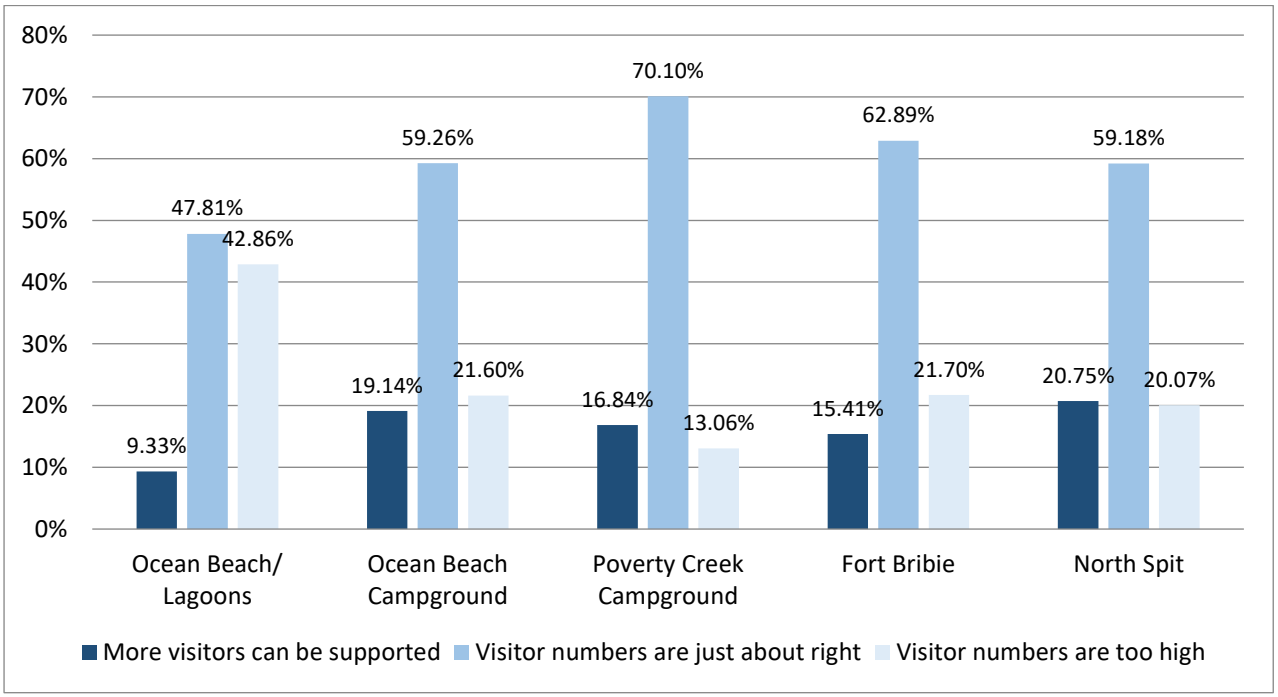
## Q18

**Description –** The question seeks respondents' views on how busy individual sites at Bribie Island National Park and Recreation Area during peak times.

**Community Survey** - *Q18. For locations that you are familiar with, please select the statement about peak visitor activity that you most agree with.*




**User Survey** - *Q18. For locations that you are familiar with, please select the statement about peak visitor activity that you most agree with.*



**Overview of Responses –** Community and user survey respondents varied significantly in their perspectives on this question:

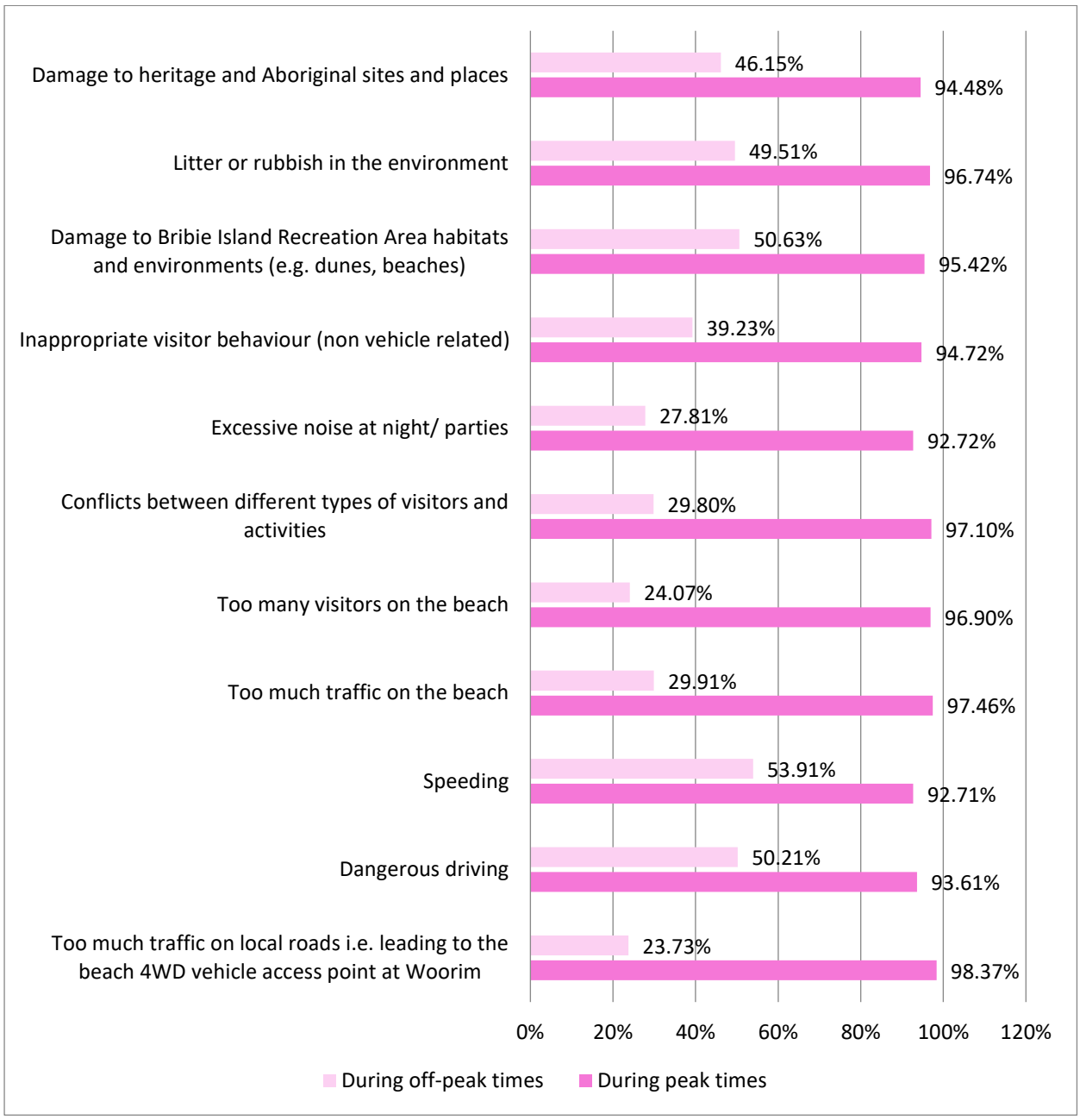
- Community respondents noted Ocean Beach/Lagoons as the location where most concern was expressed with "visitor numbers being too high" during peak periods accounting for almost 60% of the total responses. There was less than 20% support for "More visitors can be supported" at any of the sites. Fort Bribie and Poverty Creek Campground have most support for visitor numbers being just about right at peak times.
- User/ permit holder respondents noted "Just about right" as the most popular answer for all locations regarding peak period visitation. For Ocean Beach/Lagoons, 42% of respondents indicated that visitor numbers are too high during peak periods. There was minimal support for any site (less than 20% of responses) in terms of "More visitors can be supported".

## Q19[5]

**Description –** The question seeks respondents' views on visitor management issues that are occurring at Bribie Island National Park and Recreation Area.

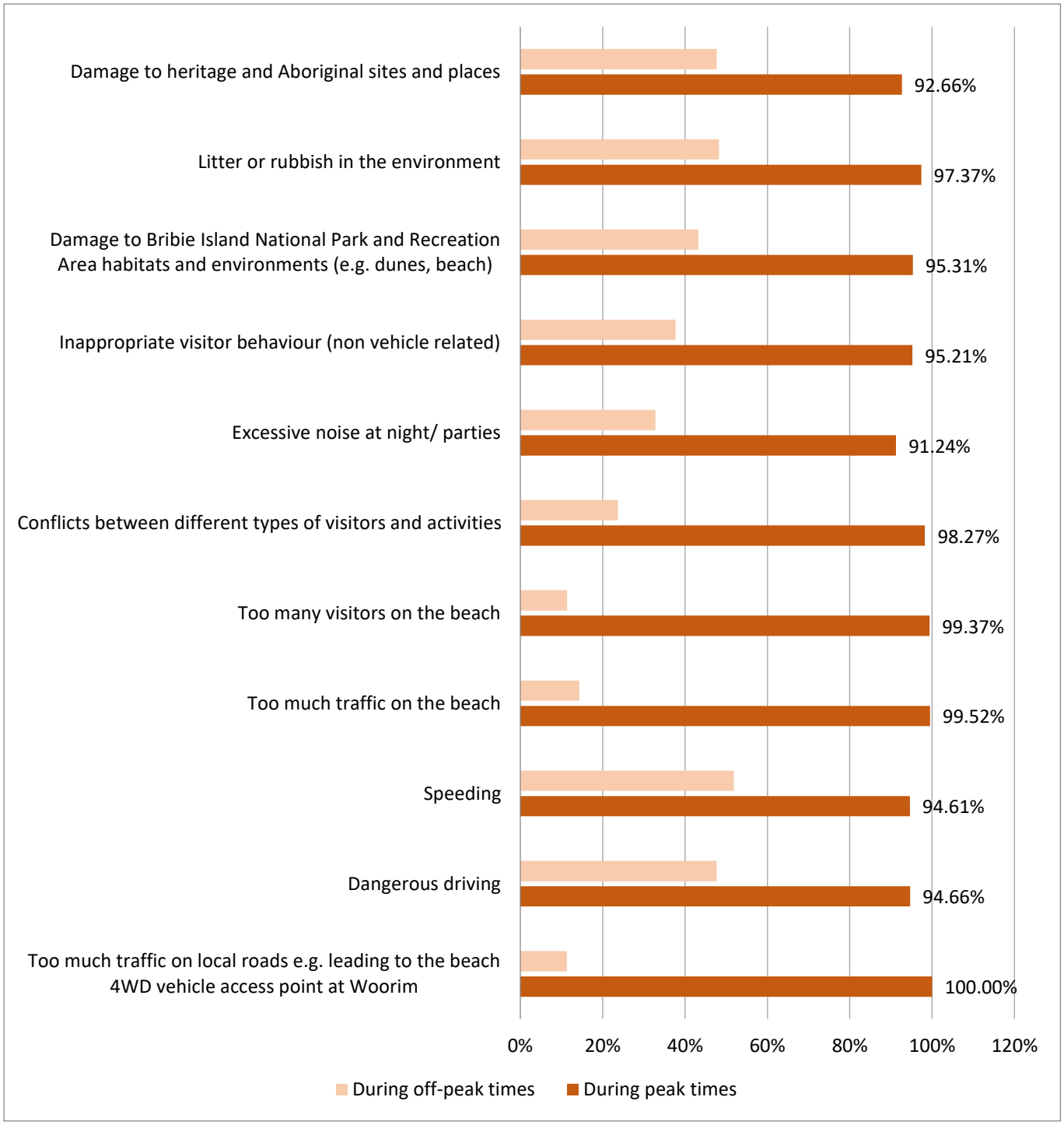
*Q. Do you think that any of the following issues occur at Bribie Island National Park and Recreation Area? Please select all options that apply.*

**Community Survey** (Q19)

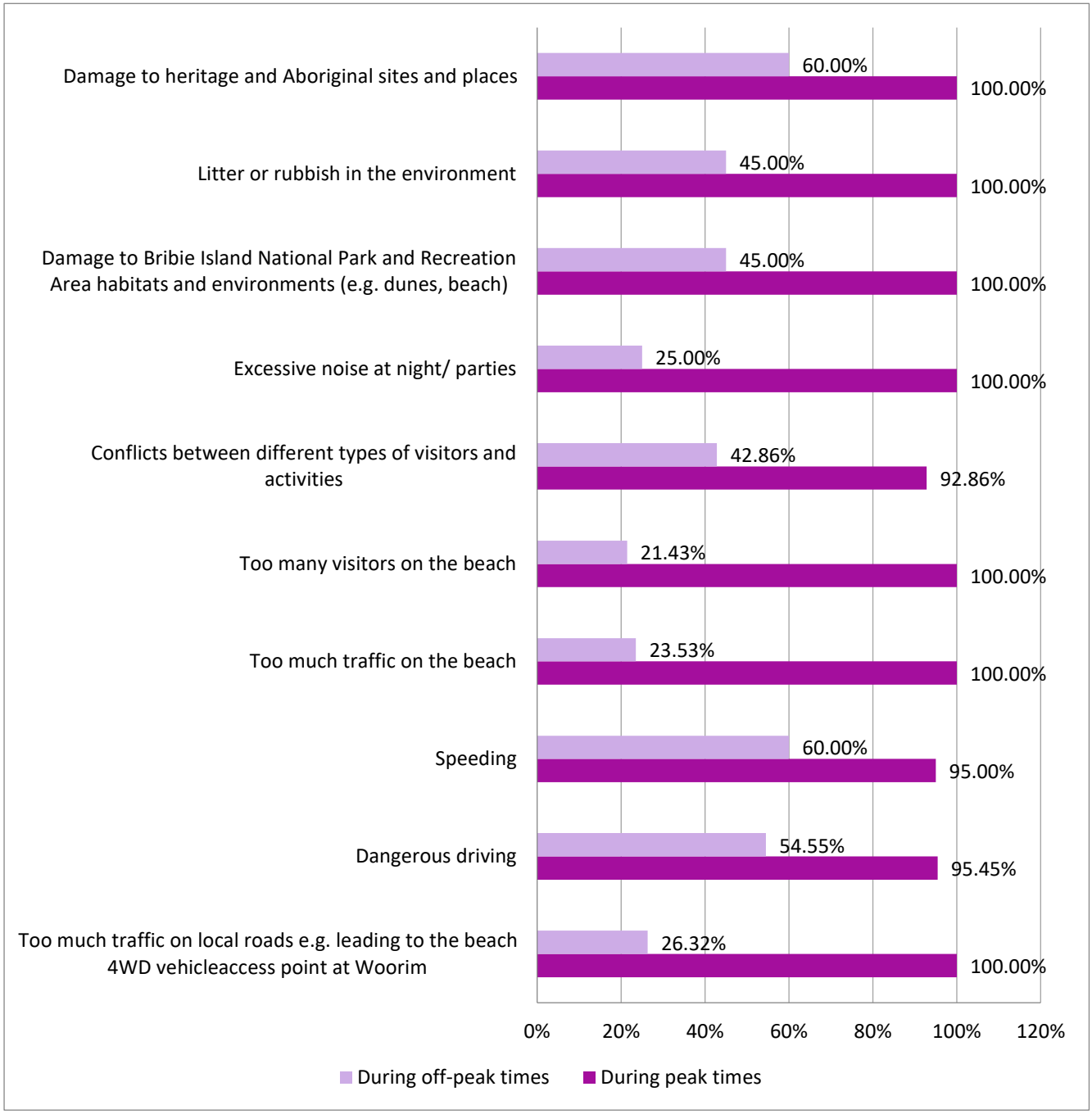



[5] Please note that in the Business and Tourism Survey this is Question 10.

**User Survey** (Q19)



**Business and Tourism Survey** (Q10)




**Overview of Responses –** Similar patterns of responses were recorded across the three stakeholder groups. Nearly all community respondents identified that all issues were prevalent during peak periods, with a minimum of 92% of respondents identifying all issues. Speeding, Damage to Bribie Island Recreation Area habitats and environment, Litter and rubbish, and Damage to heritage and Aboriginal sites were the most significant issues identified across all three surveys during off-peak.

From a business stakeholder perspective, among the 8 businesses holding a permit to operate a commercial tourism activity in the Bribie Island National Park and Recreation Area, most respondents identified that all management concerns and issues are prevalent during peak times.

In open responses to the question across the three surveys, there were a number of frequently mentioned perspectives:

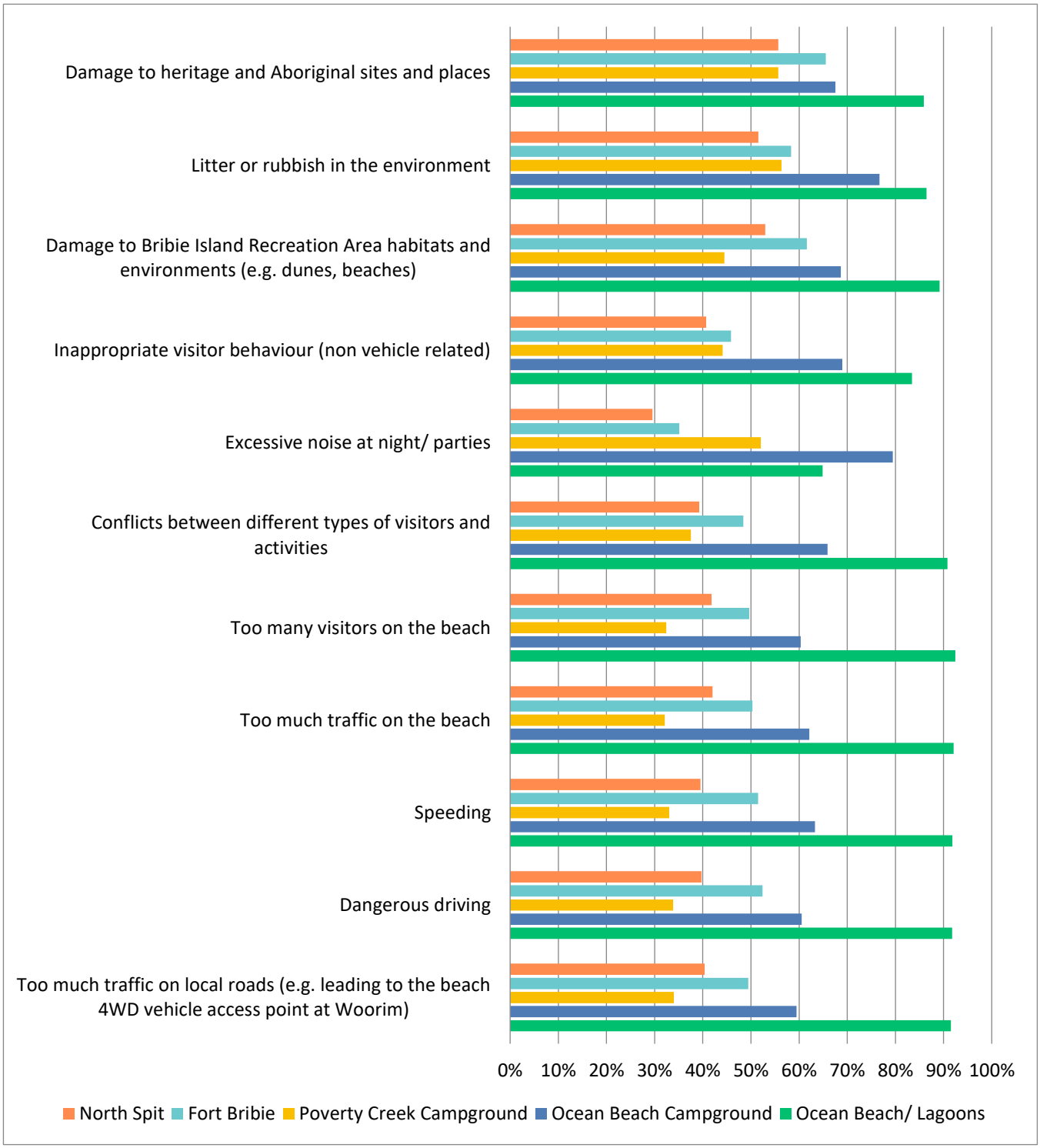
- Unsuitable booking system and regularly booked-out campsites (when they are not occupied).
- Destruction of habitat for rare and endangered species (peak and off-peak) – a need for better education.
- Local residents know not to visit on weekends, school holidays or public holidays due to vehicle traffic and behaviour.
- A greater focus on public hygiene facilities needed to minimise environmental impacts from human waste.
- Number of vehicles and visitors should be capped at a smaller number per day to reduce the excessive congestion.
- Concerns over the fast disappearance of the northern spit due to trampling by visitors on the fragile wash-over site.

## Q20[6]

**Description –** The question seeks respondents' views on visitor management issues that are occurring at individual Bribie Island National Park and Recreation Area sites.

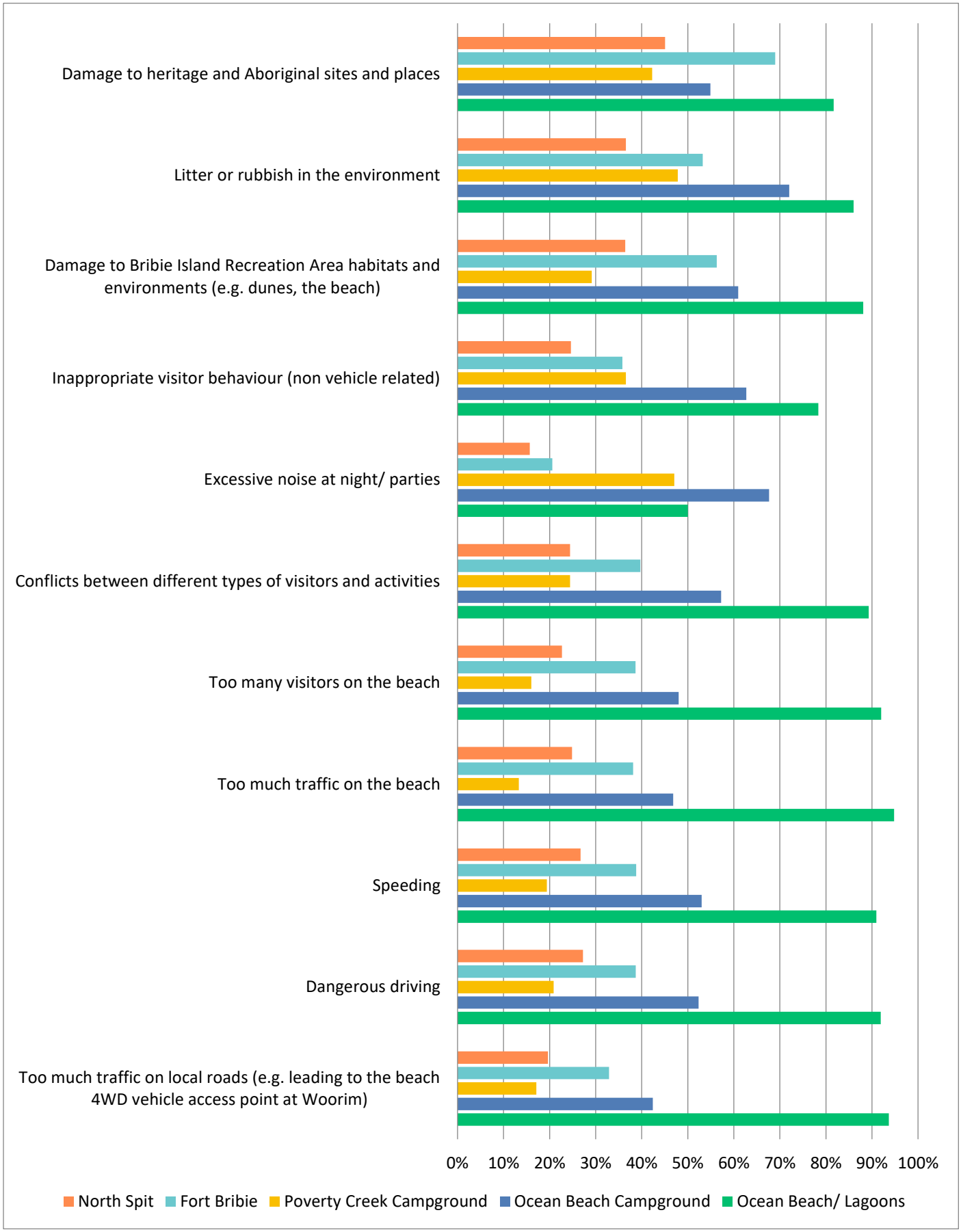
*Q. For the Bribie Island National Park and Recreation Area sites and locations that you are familiar with, do you think any of the following issues occur.*

**Community Survey** (Q20)

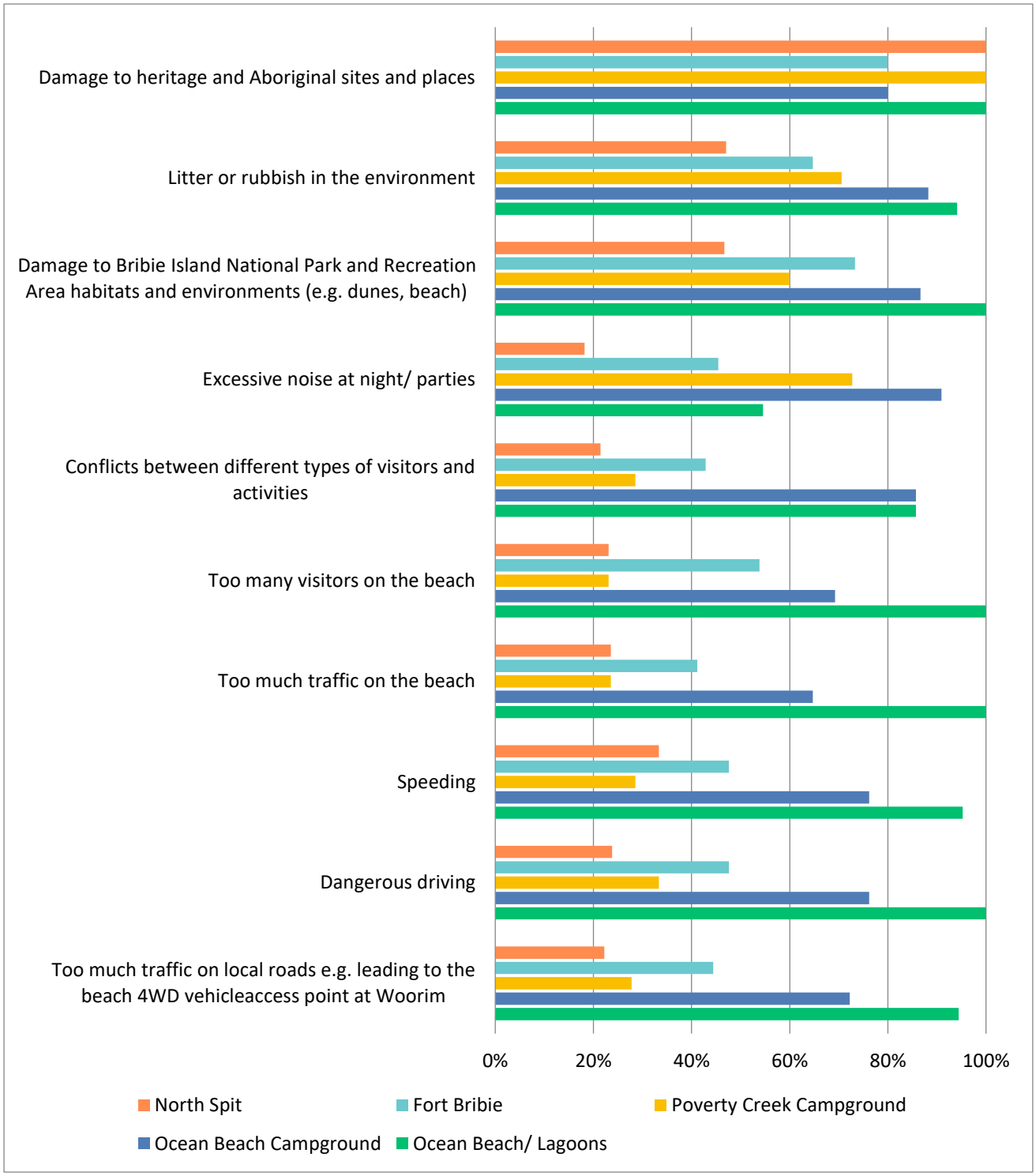



[6] Please note that in the Business and Tourism Survey, this is Question 11.

**User Survey** (Q20)



**Business and Tourism Survey** (Q11)




**Overview of Responses** - The results from this question across all three surveys indicate that Ocean Beach/ Lagoons and Ocean Beach Campground were seen as the sites with the most management issues.

Similar patterns of response were recorded across the three stakeholder groups. Too many visitors on the beach, too much traffic on the beach, Speeding, Dangerous driving, too much traffic on local

roads (e.g., leading to the beach 4WD vehicle access point at Woorim), and conflicts between different types of visitors and activities were the most significant issues for these two locations. North Spit and Fort Bribie recorded significant concern over Damage to heritage and Aboriginal sites and places across all three surveys.

With regard to business responses, among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, the results from this question indicate that Ocean Beach/Lagoons is the location where greatest prevalence of issues arise (with 100% of respondents agreeing). Speeding (75%) and Dangerous driving (50%) have less respondents noting the issues in this location. Ocean Beach Campground and Fort Bribie are also the areas with significant issues such as Conflicts between different types of visitors and activities, Excessive noise at night/ parties, and Litter or rubbish in the environment.

In open responses to the question, there were a number of frequently mentioned perspectives:

- Lack of public infrastructure (e.g., toilets) due to too many visitors and limited monitoring.
- Reckless and disrespectful behaviour of visitors are the common themes for responses: "General disregard for the sensitive natural environment and regulations e.g., keeping off the dunes, seasonal directives e.g., marine turtle nesting season."
- Bribie is showing signs of destruction of habitat or rare and/or endangered species (e.g., South Pacific Loggerhead turtles).
- Too many jet skis. One business respondent indicated that North spit is not accessible to vehicles, suggesting tourism operators should be given access to these areas as many people would like to see them, and for most, it is too far to walk. This would give tourism operators an advantage to sell something out of reach to normal day trip visitors.

## Q21[7]

**Description –** The question seeks respondents' views on the three areas that they recommend improvements at Bribie Island National Park and Recreation Area.

*Q. What are the three main issues that concern you or could be further improved at Bribie Island National Park and Recreation Area*?

**Community and User Survey** (Q 21)

The answers for this question have been categorised under thematic areas. Similar patterns of responses were noted across the community and user/ permit holder stakeholder groups.

| Theme | Comments |
|---|---|
| Aboriginal Collaboration | • Lack of co-management with traditional custodians.<br>• First Peoples must be consulted. |
| Camping Areas | • Unused camp areas despite being booked out for months.<br>• Make it easier to book (and cancel) online. You need a better website booking system.<br>• Camping numbers need to be monitored to allow equity to access camping days.<br>• Higher camping fees to stop people booking and never turning up.<br>• Penalties for misuse of constant booking multiple camp areas and not using them.<br>• More beach camp areas are needed.<br>• Policing of behaviour at camp areas.<br>• Additional camping facilities. |
| Dangerous Driving | • Policing of dangerous driving. |

[7] Please note in the Business and Tourism Survey this is Question 12.

| Theme | Comments |
|---|---|
| | • Too many people driving at high speed with no police/rangers in sight.<br>• Limiting of young and inexperienced drivers who drive dangerously on the beach (hooning, spinning wheels, etc). |
| Disrespectful Behaviour | • Disrespectful behaviours of visitors to the island.<br>• No respect for wildlife or culture.<br>• Resident arguments with visitors.<br>• Bad attitude of visitors to the local environment. |
| Entry/Exit Points & Access Infrastructure | • More entry & exit points. Build additional cuttings to access beach.<br>• The track to the beach needs to be fixed, it can be rather dangerous as sometimes you can't see people coming up or down to the beach if one lane is bogged.<br>• Another access track at Woorim would help when a vehicle is bogged.<br>• Improve public transport.<br>• Have proper beach access like other parks i.e., wood or plastic ramps.<br>• Beach access track could be graded more often. The tracks are not maintained enough, leading to terrible beach entry and exit conditions.<br>• Need bicycle access inland on existing roads.<br>• Restricted areas being accessed illegally.<br>• Damage to exit/entry beach cuts leading to widening of the cuts and damage of the dunes.<br>• Walking/bike paths in the national park, not just 4WD tracks.<br>• A better maintained beach access track at Woorim.<br>• Improved roads from Bruce Hwy to Bribie Island. |
| Environmental Damage | • Agricultural pollution from streams.<br>• People driving at high tide damaging dunes.<br>• Cumulative impacts on the dunes and beaches leading to overall degradation.<br>• Jet skis are a menace to wildlife.<br>• Cars on a beach where there are turtles nesting.<br>• Conservation of turtle nesting areas. When it comes to turtle season, close the beaches completely, except for responsible tourism operators.<br>• Beach erosion.<br>• Preservation of the Fort areas and stabilisation of the North Spit area.<br>• Educate visitors to stay off foredunes.<br>• Environment and conservation should come first over tourism.<br>• More resources are required to preserve the conservation of the park. |
| Facilities | • More toilet dump points in campground and in access roads when leaving beach.<br>• Not enough toilet/shower facilities.<br>• More amenities – toilets.<br>• Disability access.<br>• Improved amenities to help prevent littering and bush toileting.<br>• Needs more amenities blocks on beach for day use and camping. |
| Fishing | • Commercial fishers netting the beaches.<br>• Overfishing.<br>• Recreational fishing and boundaries to remain as is. |
| Historical & Heritage Sites | • Historical sites not being looked after - both First Nations people's and war sites.<br>• Maintain WWII historic remnants.<br>• Conservation of Indigenous land.<br>• Lack of indigenous acknowledgement.<br>• Provide more history of Indigenous people.<br>• Restoration work needs to be regularly done on the environment and historical sites.<br>• Aboriginal sites being degraded |
| Noise Pollution | • Campers are loud even after midnight and sometimes are hooning on the beach.<br>• Excessive noise at peak times.<br>• Too much noise and speed on the water by jet skis.<br>• Excessive noise from vehicles on road to Ocean Beach access. |
| Overcrowding | • Too many people and 4WD on the beaches at once.<br>• Too many vehicles in the National Park.<br>• Too many visitors especially in peak times. |
| Over/under development | • Over development of the mainland adjacent to Bribie.<br>• Lack of commercial tourism activity. |
| Permits/Cap | • Beach camping & access for island residents only. |

| Theme | Comments |
|---|---|
| | • Vehicle and 4WD access to beach needs to be limited in peak periods.<br>• Limit numbers allowed on beach, day use and overnight camping.<br>• Limit annual passes and make them more expensive.<br>• Limit the number of vehicles issued permits that aren't fit for tracks.<br>• Should be limited permits to National Park & Rec Area.<br>• Have a 4WD training licence.<br>• Have vehicle permits aligned with other RAM areas.<br>• Less watercraft at peak times.<br>• Limit the amount of alcohol e.g., a restriction on the volume of alcohol taken into the park per person. |
| Rangers | • Lack of ranger patrols.<br>• More ranger presence needed.<br>• Rangers need to enforce rules that are in place.<br>• More QPS and ranger patrols during the day.<br>• More resources are required to support ranger activities. |
| Regulation | • Restrict driving on beaches during high tides.<br>• Higher police presence required on the beach.<br>• P platers to be limited on beach.<br>• 4WD control in sensitive areas. Reduce 4WD access to Ocean Beach. Stop the web site for Bribie 4WD.<br>• Bribie residents should be exempt from access fees or have a reasonable discount as we are the people that clean up visitors' rubbish etc. Concessions for locals.<br>• Make it smoke free.<br>• Always allow locals access.<br>• Monitor visitors, educate visitors about regulations, and enforce them, tend to the environmental needs like weeding and fire control.<br>• Create safer traffic options for entry points outside of park (Traffic Calming)<br>• There should be a noise ban.<br>• All beach driving banned during turtle season.<br>• Enforce speed limits on beach.<br>• More radar speed cameras to prevent damage to people and land.<br>• General education from rangers for novice 4x4 drivers and environmental damages it causes. |
| Rubbish | • Rubbish being left particularly in day use areas.<br>• Leaving of rubbish on the beach and around campsites<br>• Encourage boaties / jet skis to return their rubbish to the mainland rather than dump at North Spit.<br>• The amount of rubbish left by visitors and campers including "bush toileting", more toilet facilities, especially near the lagoons would help reduce this.<br>• More rubbish bins. |
| Signage | • Signage for speed limits.<br>• More education signs around to educate drivers on the best way to drive safely.<br>• Exit signs needed.<br>• Clearer signage for entering and exiting beach.<br>• Turtle habitat awareness signage needed. Education and better signage around turtle laying season, and ranger patrols.<br>• More notifications on beach closures. |

**Business and Tourism Survey** (Q12)

The answers for this question have been put into a thematic table to identify the key themes and comments. Blue text highlights the responses from those holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area.

| Theme | Comments |
|---|---|
| Access Infrastructure | • Inland Walking Tracks Developed & Campgrounds to Connect from North to South.<br>• Equitable access for commercial operators vs public access.<br>• Access to currently closed areas by incorporated clubs. |

| Theme | Comments |
|---|---|
| | • Local roads that access the areas need to be improved to control traffic at peak times.<br>• Entry track maintenance/ policing. |
| Campsites | • Better camp booking system to eliminate people booking sites but not actually using them.<br>• Regular policing of camp sites.<br>• Camp bookings not policed, booked months in advance.<br>• Light House Reach camping made available.<br>• No camping opportunities for tourism operators. We have no commercial camp sites and are not being allowed to set up one. |
| Dangerous Driving | • Unsafe vehicles.<br>• Dangerous and reckless behaviour and driving.<br>• Inexperienced beach drivers.<br>• Too many jet skis not obeying the speed rules and swamping boats, being a nuisance to other watercraft.<br>• The question of when and why and where beach driving should be allowed in the first place need to be addressed.<br>• Stop all traffic on the dunes.<br>• P platers should be banned from 4WD beach.<br>• Vehicular access to the island is terrible regardless of peak/off peak.<br>• Encouragement of accredited competency-based driver training. |
| Disrespectful Behaviour | • Blatant disregard for National Parks rules by visitors. |
| Environmental Damage | • The dunes are being destroyed and leaving the beaches far more prone to erosion in the storm season.<br>• Natural assets are being destroyed by out-of-control 4WD.<br>• Those making decisions on allowable future activities regarding beach driving need to spend time on the beach at 5am. The advisors to the Minister admit they have never been on the beach at that time to see the damage done the night before or to see the illegal campers in the dunes. |
| Facilities | • No toilet facilities at the lagoons or along the beach until the campgrounds.<br>• More toilets on the beach.<br>• More bins.<br>• Better facilities for people.<br>• Light House Reach camping made available. |
| Historical & Heritage Sites | • Protection for Aboriginal sites.<br>• Aboriginal Heritage is being destroyed.<br>• There is no net financial benefit to the local community from tourism activity. |
| Overcrowding | • Way too much traffic.<br>• Excess traffic. |
| Permits/Cap | • Visitor numbers need to be controlled.<br>• Reduce daily numbers of vehicles on beach. |
| Regulation | • Policing not only visitors but locals too.<br>• Regular policing of beach driving.<br>• Monitoring behaviour.<br>• Compliance / enforcement of driver behaviour on the beach areas needs to be increased.<br>• Increased fines.<br>• P plate drivers not allowed to drive on the beach.<br>• Management needs to comply with all the Queensland, Commonwealth and International Acts, regulations, treaties etc. applicable to this jewel of an asset.<br>• Not policed - we need more obvious enforcement in the waterway - and education.<br>• Speed limit should be 10-15KPH.<br>• Dog control. |
| Rangers | • More Rangers on Beach. |
| Tourism Opportunities & Limitations | • Not enough opportunity for tourism operators to offer what they want to offer.<br>• No camping opportunities for tourism operators. We have no commercial camp sites and are not being allowed to set up one.<br>• Queensland National Parks is failing in its duty of care and misdirecting its resources away from broader conservation and protection responsibilities in the NP. |

| Theme | Comments |
| --- | --- |
| | • Sunshine Coast Council approving a marina and boat stacker in Pelican Waters - which will increase the number of watercrafts in the narrow section of the Pumice Stone Passage - this is unsustainable.<br>• More tourism opportunities. |

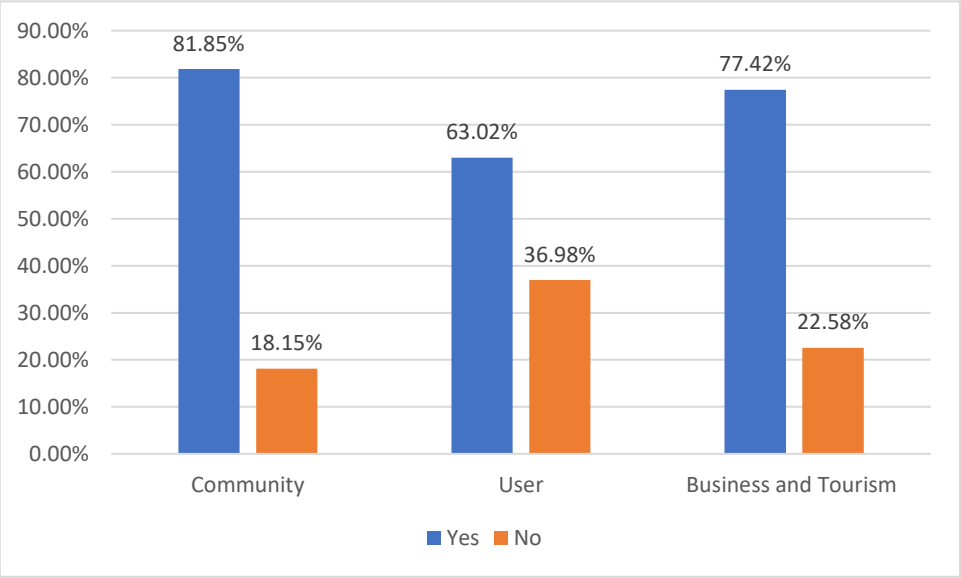
## SECTION 4 – YOUR THOUGHTS ON FUTURE MANAGEMENT OPTIONS FOR BRIBIE ISLAND NATIONAL PARK AND RECREATION AREA

**Q22[8]**

**Description –** The question seeks respondents' views on whether management action needs to be taken to achieve a better balance between *conservation, community and visitor objectives.*

Q. *Do you believe that management actions need to be taken to achieve a more appropriate balance between conservation, community and visitor objectives at Bribie Island National Park and Recreation Area?*

Community and User Survey (Q22) Business and Tourism Survey (Q13)




*Please note that for the purposes of comparison, the Question 22 results from the community, user, and Business and Tourism surveys have been combined into a single graph*

**Overview of responses –** Similar patterns of responses were expressed by community and business/ tourism stakeholders with 81.85% and 77.42% of respondents noting that management actions need to be taken to achieve a more appropriate balance between conservation, community and visitor objectives at Bribie Island National Park and Recreation Area. Support for management actions by users/ permit holders was lower, at 63.02% of respondents.

Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, 6 out of 8 respondents (75%) believe that some type of management action is needed to achieve a more appropriate balance between conservation, community and visitor objectives at Bribie Island National Park and Recreation Area.

In open responses to the question, there were a number of frequently mentioned perspectives:

- Responses highlighted the importance of after hour patrols and stricter penalties for those that are doing the wrong thing, and the need to enforce fair and equitable campsite bookings.

[8] Please note that in the Business and Tourism Survey this is Question 13.

- National parks could use increased fees and call for more funding for monitoring equipment and improved management of resources.
- Introduce ways to limit numbers of people.
- More police to fine or give more power to park rangers. Putting more police presence out at night when people are partying and hooning on the beach.
- Educating visitors on why what they are doing is right or wrong.
- Total ban during turtle breeding season.
- Ban people who repeatedly book but do not show up.
- Create more camping sites for people to use.
- Potential limits to non-residents.
- Access should be restricted to open licence holders.
- Collaboration/ Input of Indigenous Management.
- Some respondents indicated the issue of the beaches on Bribie being perceived as a 'highway,' highlighting the negative perceptions that members of the public have on the area.
- The most common themes in responses (particularly from the community stakeholders) were limiting the number of visitors, vehicles and 4WD vehicles to the area especially in peak periods to reduce environmental impacts.
- Speeding is another common theme that has been brought up with many respondents suggesting cameras or reduced speed limits should be put in place to reduce people driving dangerously.

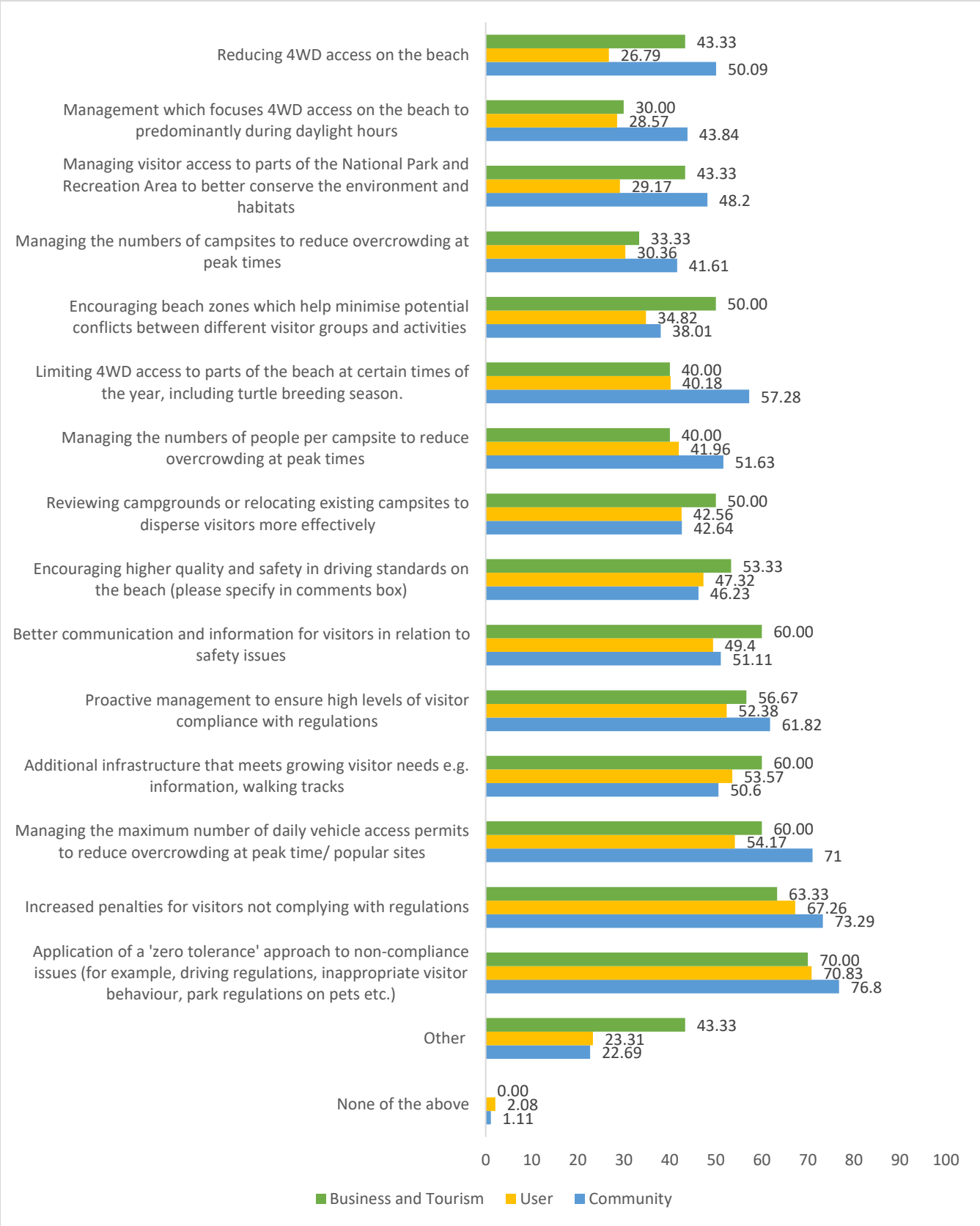
**Q23[9]**

**Description –** The question seeks respondents' views on future management options that can be considered for Bribie Island National Park and Recreation Area.

*Q. Looking at National Parks around the world, a range of management techniques are used to improve public safety whilst managing tourism and achieving economic, cultural and conservation outcomes.*

[9] Please note for the Business and Tourism Survey this is Question 14.

Community and User Survey (Q23) Business and Tourism Survey (Q14)




*Please note that for the purposes of comparison, the Question 23 results from the Community, User, and Business and Tourism surveys have been combined into a single graph*

**Overview of responses –** Application of a 'zero tolerance' approach to non-compliance issues has the highest percentage of respondents across all three surveys who believe this management response should be considered (greater than 70% in all surveys). Increased penalties, Managing the maximum number of daily vehicles, Proactive management and Additional infrastructure also received consistently high levels of support. Most of the management techniques were rated positively for consideration.

From a business/ tourism stakeholder perspective, "Better communication and education between QPWS and businesses" (60.9%) has the highest percentage of respondents who believe this management option should be considered for Bribie Island National Park and Recreation Area. This is followed by Managing the number of tourism operators and businesses, provide incentives to businesses that can demonstrate eco-accreditation, provide incentives to businesses to increase their cultural capability, and where appropriate, providing for increased business flexibility to vary permit conditions to support changing market demand, all of which have 52.2% of respondents agreeing.

Generally, CTOs have a lower level of support for management options. Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, Where appropriate, providing for increased business flexibility to vary permit conditions to support changing market demand (87.5%) has the highest percentage of respondents who believe this should be considered for Bribie Island National Park and Recreation Area. This is followed by Better communication and education between QPWS and businesses (62.5%).

In open responses to the question, there were a number of frequently mentioned perspectives:

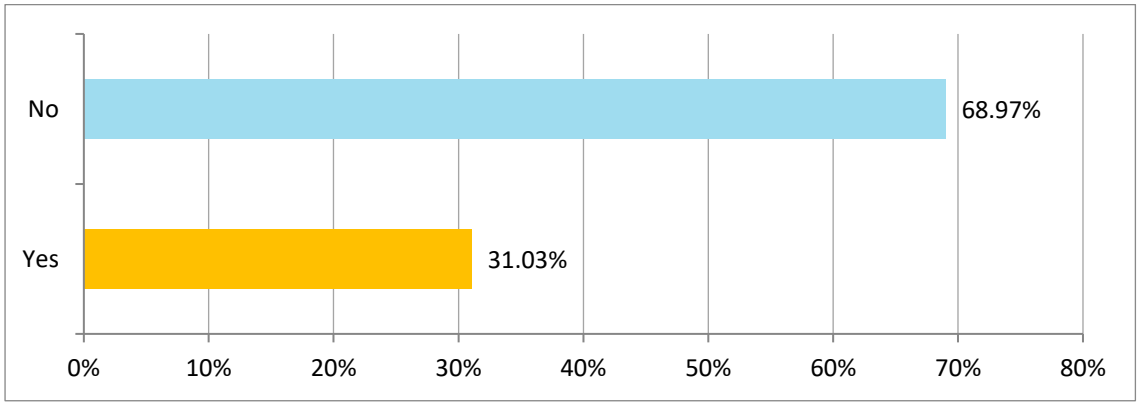
- Training through 4WD clubs/training courses to improve drivers' experiences and reduce environmental damages to the dunes and natural habitat.
- Permits should only be available to people who hold an open licence as many provisional drivers are not familiar with beach driving and do not drive appropriately.
- Provide incentives to businesses to increase their cultural capability.
- Making use of volunteers from incorporated clubs: a club could adopt a campsite for example, put up a fire ring, perform maintenance on it once a year, etc.
- One respondent commented that there are too many of the wrong types of businesses (i.e., businesses that are environmentally destructive like jet skis) in the Bribie Island National Park and Recreation Area. In fact, there are almost no sustainable and environmentally and culturally sensitive businesses. One suggested having clearly defined and consistently applied rules set out for the commercial operators.
- Educate visitors accompanied by strong compliance and enforcement.
- More funding for national parks is recommended to support better management.
- Due to the high cost of permits, one further suggested "relevant infrastructure should be built to accommodate where people congregate (e.g., lagoons)."
- Further, ecotourism can be promoted through the proposed Bribie Discovery Centre.
- The green bike way from Caboolture rail to Woorim via green bridge. This type of tourism brings economic benefits without damage.
- A better camping booking system is another common suggestion which address the regular issue of booked out / ghost campsites.
- A 24/7 police presence in the campsites especially on weekends and peak periods.

- Suggestions for vehicle permits to be issued after passing online question test and “first time applicants for a VAP should be required to complete an online test to demonstrate their knowledge and ability to drive on a beach.”
- Visitors should be encouraged to make use of the existing group tour operations instead of using private vehicles. One suggested no camping, only licensed tour operators allowed to drive on the beach and prohibit trail bikes on beaches entirely.
- The need to introduce a system that ensures people are only driving on the beach during low tide or the 2 hours before and after low tide. It seems like inexperienced drivers do not know this and are driving at high tide causing them to drive on the dunes.

**SPECIFIC QUESTIONS UNIQUE TO THE BUSINESS AND TOURISM SURVEY**

**Description –** The question seeks respondents' views on whether they have previously sought advice from the Queensland Government regarding commercial tourism opportunities in National Parks.

**Q16 -** *Have you previously sought advice from the Queensland Government (Queensland Parks and Wildlife Service) regarding opportunities to operate a commercial tourism activity in Bribie Island National Park and Recreation Area?*



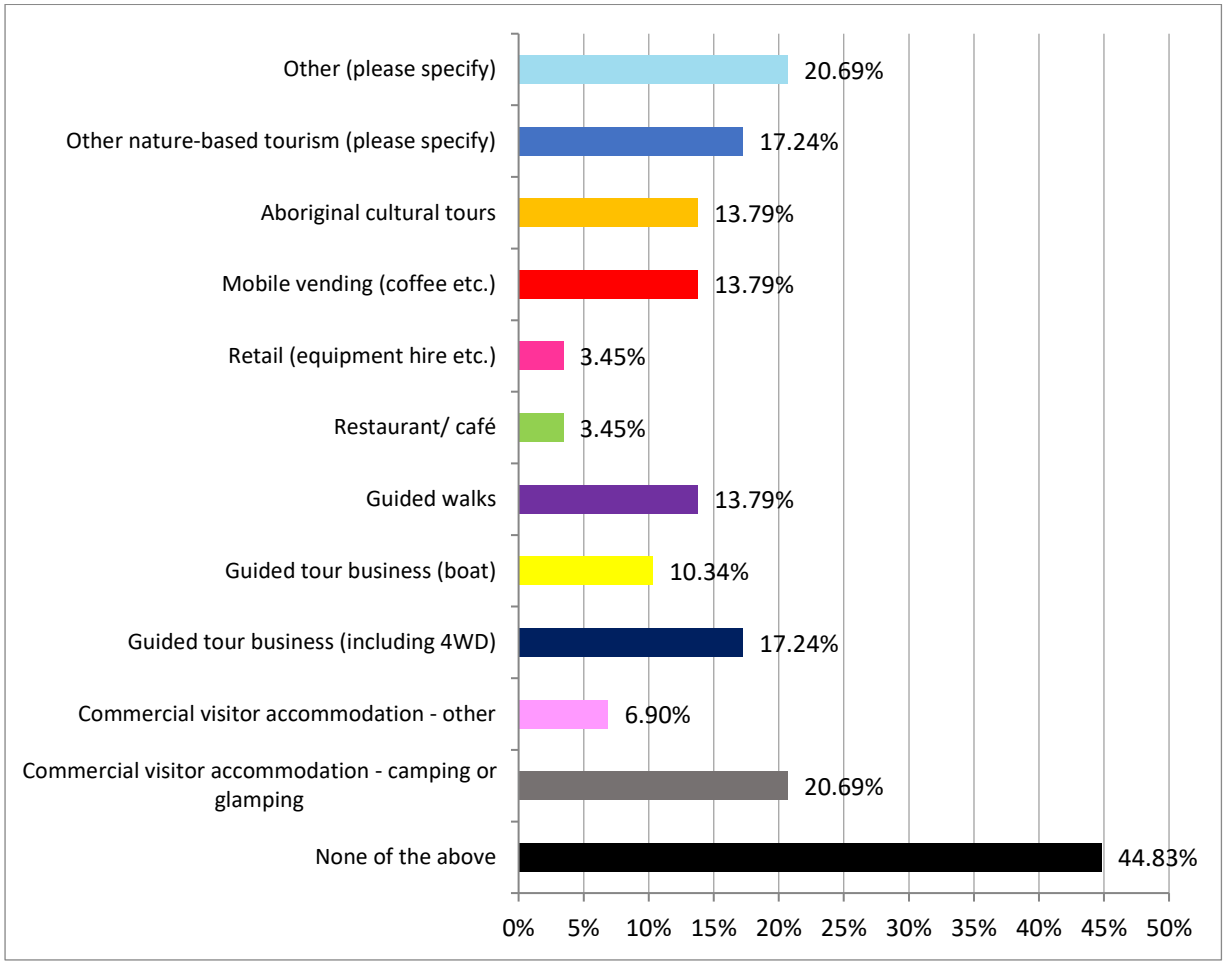

**Overview of responses -** 31% of respondents indicated they have previously sought advice from the Queensland Government (Queensland Parks and Wildlife Service) regarding opportunities to operate a commercial tourism activity in Bribie Island National Park and Recreation Area.

Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area who responded to the survey, 7 of 8 respondents indicated they have previously sought advice.

## Q18

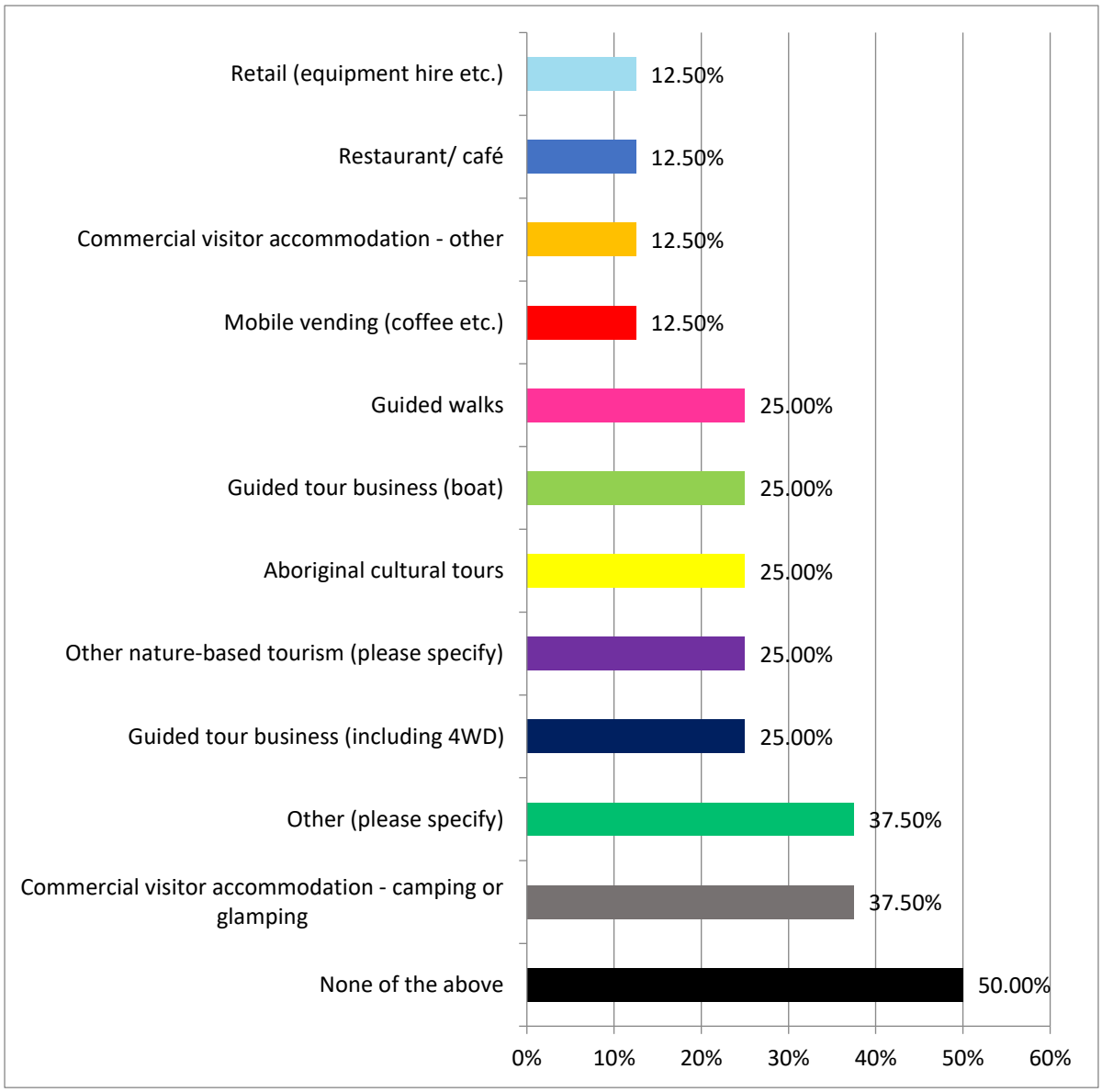
**Description –** The question seeks respondents' views on potential interest to approach the Queensland Government regarding new or expanded commercial tourism opportunities in Bribie Island National Park and Recreation Area over the next 3-year period.

**Q18 –** *Are you considering approaching the Queensland Government regarding new or expanded commercial tourism opportunities in Bribie Island National Park and Recreation Area over the next 3-year period? Please indicate the types of business opportunity that may interest you (please select all that apply).*




**Overview of responses** - Apart from "None of the above," the largest number of respondents indicated an interest in approaching the Queensland Government regarding new/expanded commercial visitor accommodation – camping or glamping/other (2.99%), Guided tour business (including 4WD) (17.24%), and Other nature-based tourism (17.24%).

Some qualitative responses indicated interest in an education and awareness centre, driver training courses, and cocktail bars.



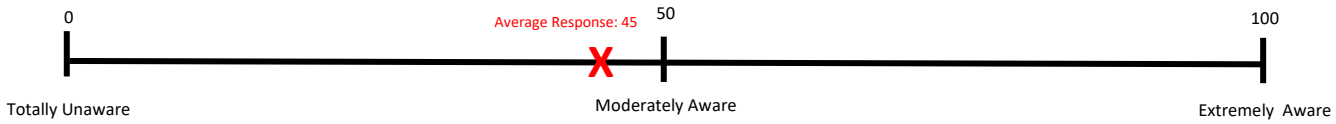

**Overview of responses** - Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, most respondents indicated an interest in approaching the Queensland Government regarding new/expanded Commercial visitor accommodation – camping or glamping (37.5%) and Other nature-based tourism (37.5%).

Some respondents expressed their interest in Guided tour business (including 4WD) (25%), Aboriginal cultural tours (25%), Guided tour business (boat) (25%), and Guided walks (25%).

## Q19

**Description –** The question seeks respondents' awareness of the Queensland Government's process for considering/applying for a commercial activity permit.

**Q19 –** *To what extent are you aware of the Queensland Government's process for considering/applying for a commercial activity permit to operate a tourism business in a National Park or Recreation Area, including Bribie Island National Park and Recreation Area?*




The average number was 45 on the range from 0 (Not aware at all) to 100 (Fully aware), indicating only average awareness of commercial tourism activity permit processes.

Among the 8 businesses holding a permit to operate a commercial tourism activity in Bribie Island National Park and Recreation Area, the average number was 80, showing significantly stronger levels of awareness.

# Appendix 3: Comparison of Australian National Park Vehicle Fees and Passes

Figure A: Fees Comparison

| State | Permit/Price |
|---|---|
| **NSW** | • All Parks Pass: **$190** (1 year), **$335** (2 years)<br>• Multi Park Pass: **$65** (1 year), **$115** (2 years)<br>• Country Parks Pass: **$45** (1 year), **$75** (2 years)<br>• Single Park Pass: **$22** (1 year), **$40** (2 years)<br>**Seniors discounts apply:* Parks NSW |
| **ACT** | Namadgi National Park and Tidbinbilla access<br>- Private Vehicle (up to 8 seats): **$14** (day pass), **$38** (annual pass)<br>**Different prices for different vehicle types, seniors or school groups:* Tidbinbilla |
| **VIC** | No vehicle entry fees – fees only apply for events or camping, with peak, shoulder and off peak rates applying in busy parks |
| **TAS** | - Daily Pass (excluded Cradle Mountain): **$40** (per vehicle), **$20** (per person)<br>- Icon Daily Pass (Cradle Mountain only): **$25** (Adults), **$10** (Children), **$60** (Family)<br>- Holiday Passes – up to 2 months (includes Cradle Mountain): **$80** (per vehicle), **$40** (per person)<br>- Annual Park Pass – all parks: **$90** (General), **$36** (Seniors), **$46** (One Park)<br>- Two Year Parks Pass – all parks: **$115** (General), **$46** (Seniors)<br>**Concession discounts apply:* Parks TAS<br><br>Arthur-Pieman Conservation Area Recreation Driver Pass (4WD)<br>- 1 month Pass: **$33**<br>- Annual Pass: **$55**<br>Arthur-Pieman Conservation Area |
| **SA** | - 2-month Multi-parks Pass: **$48** (adult), **$38.50** (concession)<br>- 12-month Multi-parks Pass: **$108** (adult), **$87** (concession)<br>- 12-month Single Park Pass: **$72** (adult), **$60** (concession)<br>- 12-month Vehicle and Camping for Desert Parks: **$178**<br>- 12-month Vehicle and Camping for Desert Parks Renewal: **$107**<br>Parks SA<br>Kangaroo Island Tour Pass: **$54.50** (adult), **$161.50** (family) Kangaroo Island |
| **WA** | - Holiday Pass: **$60** (4 weeks), **$40** (14 days), **$25** (5 days)<br>- Annual All Parks Pass (12 months): **$120** (adult), **$75** (concession)<br>- Goldstar Pass (12 months): **$150**<br>- Annual Local Park Pass (12 months): **$25**<br>Parks WA |
| **NT** | Uluru- Kata Tjuta Park Passes<br>- Adult: **$38** (3 days), **$50** (12 months)<br>- Vehicle of resident of the NT (12 months): **$109**<br>Uluru Passes |

# Appendix 4: Capacity Analysis

## Capacity Issues

Evidence from stakeholder interviews and user, business and community surveys shows widespread recognition of there being too much traffic and too many visitors on the beach at peak times[10] and for considering a maximum number of daily visitors as a management response[11]. However, there is limited evidence available from project research in terms of the reduced capacity level where tangible improvements to visitor experience, heritage management and environmental upkeep will be made.

Significant behavioural elements are noted as contributing factors to visitor experience and environmental upkeep, nonetheless peak visitor volumes are an important contributing factor.

Capacity issues apply to BIRA as a whole, and to individual hotspot sites, such as Ocean Beach lagoons and Fort Bribie.

### Area-wide capacity issues

When asked for views on visitation levels at peak times, sentiment across community, permit holders and businesses was that visitor numbers are too high.[12] Available evidence gathered during the study points strongly towards the need to reduce capacity at peak periods as part of a package of sustainable management measures.

Area-wide issues include:

- Heavy traffic levels on the roads entering and existing the beach access at Woorim, at peak daily periods (early/mid-morning and late afternoon, subject to tides).
- Heavy traffic levels on the roads entering and existing the beach access at Woorim, at peak periods – public holidays, long weekends, and school holidays. Some public holiday periods attracted exceptional levels of vehicle traffic – in 2021, Australia Day and the October long weekend both attracted an estimated 1,200+ vehicles. While these 2 days/weekends are outliers, generated by a combination of COVID-related trade and good weather in 2021, they are a good demonstration of the impact of demand when no tools are available to limit daily capacities.
- As well as the practical requirement to get from A to B, the drive is also an important part of the experience visitors are seeking - scenic drive and 4WD driving is noted by approximately 50% of community survey respondents as a main reason for visiting. This number was significantly higher for the permit holder survey at 70% and 81% respectively.[13]
- Traffic levels on the beach, and the characteristics of the beach having to be used as a highway to reach popular locations along it. The majority of vehicles and traffic movements are on the beach between Woorim and Fort Bribie.
- Business, permit holder and community stakeholders all showed strong recognition (90%+ recognition across all stakeholder groups) that a range of management issues were prevalent at peak times[14]. Speeding, Damage to Bribie Island Recreation Area habitats and

[10] Technical Appendix 2, question 19
[11] Appendix 2, question 23
[12] Technical Appendix 2, question 17
[13] Technical Appendix 2, question 9
[14] Technical Appendix 2, question 19

environment, Litter and rubbish, and Damage to heritage and Aboriginal sites were the most significant issues identified across all three surveys during off-peak periods.

- Environmental and potential health problems at the lagoons, which are mostly observed, or which are at a maximum along peak day visitor levels.
- From a business stakeholder perspective, among the 8 businesses holding a permit to operate a commercial tourism activity in the Bribie Island National Park and Recreation Area, most respondents identified that all management concerns and issues are prevalent during peak times.

The automatic number plate recognition cameras at Woorim and White Patch entrance/exist points now provides an effective measure of total vehicle movements – a major step forward in understanding volume of activity. Factors to consider include:

- As with the situation at Cooloola there is a proportion of visitors who have an incorrect/ no VAP, nonetheless, traffic movements are all captured by the number plate cameras.
- The number plate cameras provide a good sense of total traffic movements, but do not account for multiple movements by individual vehicles.
- Visitors access the area via either weekly or annual VAPs.
- VAPs mainly relate to day visitor activity but are also associated with camping (which are mainly accounted for in purchases of weekly VAPs).

### Site-specific capacity issues

Study research confirmed that a number of popular sites are especially impacted by peak visitation and traffic levels.

- Community survey respondents noted Ocean Beach/Lagoons as the location where most concern was expressed with "visitor numbers being too high" during peak periods accounting for almost 60% of the total responses.
- The linear nature of Ocean Beach and the popular spots (lagoons, Ocean Beach Campground and Fort Bribie) exacerbates peak traffic flows – the majority of vehicle movements and stationary vehicles are confined to a relatively small area – a situation that can be further exacerbated by tides.
- There was less than 20% support for "More visitors can be supported" at any of the sites. Fort Bribie and Poverty Creek Campground have most support for visitor numbers being just about right at peak times. User/ permit holder survey respondents noted "Just about right" as the most popular answer for all locations regarding peak period visitation. For Ocean Beach/Lagoons, 42% of respondents indicated that visitor numbers are too high during peak periods[15].
- From an environmental perspective, healthcheck reports a greater prevalence of issues such as bush toileting, litter, damage to dunes and creep/extension of compacted areas at those sites identified as being too busy at peak times (Lagoons, Ocean Beach Campground, Fort Bribie).

[15] Technical Appendix 2, question 19

## Analysis of capacity management issues

BIRA has a distinct user profile, with visitors drawn largely from the local Moreton Bay region. It is an established leisure destination for local residents, with usage patterns in large part, established prior to designation as a National Park. Key characteristics which influence demand and peak capacity include:

- Demand and capacity pressures are overwhelmingly a day visitor issue. While camping at Ocean Beach and Poverty Creek are popular, camping visitor numbers are small compared to nearby Cooloola Recreation Area.
- As previously noted, 4WD and scenic drives are key reasons for people to choose Bribie as a destination.
- Location. BIRA offers the first white sand to the beach north of Brisbane for beach visits, as well as offering the most accessible location for beach 4WD driving.
- BIRA has a complex mix of users including, growing populations (on the island and in the wider Moreton Bay region) who generate recreational demand, and visitors.

From a management perspective, visitors' choice of accessing BIRA via either weekly or annual VAPs, makes management peak visitor loads challenging. Considerations include:

- BIRA has a management advantage in that there are single entry and exit points at Woorim and White Patch, providing an ability to manage access and capacities.
- There are limits on technological solutions for managing visitation levels and capacity at present.
    - The Automatic Number Plate Recognition System is a great step forward, but at present the system does not link directly with compliance/ enforcement and it is not possible to automatically distinguish between different VAP types. Widespread use of QR codes and the public being conditioned to 'checking in' to venues, may open up new monitoring options in the future.
    - Connectivity at BIRA is largely good, but some blackspots prevent universal coverage which limits the use of some technologies – for instance, heat mapping of movements (effectively counting numbers of mobile phones) in an area is now becoming a more affordable and accessible management tool to understand movements and volume of visitors.
- The choice of weekly or annual VAPs provides flexibility to meet the needs of a range of consumer groups but makes management of an accurate capacity limit impractical at present – in simple terms, when there is not a need to pre-book for individual days, those visitors with weekly and annual VAPs have the ability to travel on any day they want (within the terms of their VAP).

## Demand and capacity

Key issues to highlight include:

- Consensus from consultation is that given varying group size and travel parties, an average of 2 vehicles per campsite is realistic i.e., **77 sites (White Patch and Ocean Beach) would require up to an estimated 150 VAPs** to provide for vehicles associated with camping (at full capacity) before day visitors are considered. Ghost bookings are noted as a significant issue which impacts ability to service demand at peak times, however, there is no available evidence that demonstrates an immediate need for additional camping capacity.

- Analysis of data patterns identified **that 1,200 vehicle movements (an estimated 600 vehicles)** (signified in yellow in figure A), as a threshold over which, a peak period above

usual norms can reasonably be defined. As this is a count of total traffic movements, it includes both day visitors and campers. For BIRA, the accuracy of the vehicle reads makes this measure more pertinent for determining peak capacity than live weekly or annual VAPs.

- When live VAPs are viewed as a percentage of total traffic reads, it can be noted that weekly VAPs at times are used as daily passes, as the number of live passes exceeds the number of vehicles that can reasonably be associated with total traffic movements (a single entry and exit is assumed as the norm for vehicles).

For peak periods such as Australia Day, the numbers of daily VAPs rise significantly (see figure A).

Figure A provides an analysis of daily Visitor Access Permits (VAPs) and vehicle movements detected by the Automatic Number Plate Recognition System. [16]

[16] Daily VAPs as a Proportion of Total Traffic has been calculated based on the assumption that on average ANPRS data picks up 1 entry and 1 exit for all vehicles i.e., 2 movements = 1 vehicle.

Figure A: Analysis of Daily VAPs and Automatic Number Plate Recognition System Total Daily Reads at BIRA, 2021

| Dates – BIRA* | Automatic Number Plate Recognition System (ANPRS) Total Daily Reads (All cameras) | Estimated Total Number of Vehicles (Assumes 2 ANPRS reads = 1 vehicle e.g., 1 entry and exit per day) | Total Weekly Vehicle Access Permits (VAPs) (in addition to annual VAPs) | Weekly VAPs Live as a Proportion of Total Daily Traffic Movements (annual VAPs excluded) |
|---|---|---|---|---|
| Wed 13th Jan | 303 | 152 | 170 | 112% |
| Wed 20th Jan | 205 | 103 | 431 | 420% |
| Sat 23rd Jan | 1347 | 674 | 531 | 78% |
| Sun 24th Jan | 1745 | 873 | 625 | 72% |
| Tue 26th Jan – Aust Day | 2415 | 1208 | 1054 | 88% |
| | | | | |
| Sat 6th Feb | 1121 | 561 | 328 | 59% |
| Sun 7th Feb | 1603 | 802 | 417 | 52% |
| Tue 9th Feb | 112 | 56 | 426 | 720% |
| Fri 12th Feb | 226 | 113 | 433 | 383% |
| Sat 13th Feb | 1214 | 607 | 434 | 72% |
| Wed 17th Feb | 61 | 31 | 329 | 1079% |
| Sat 20th Feb | 475 | 238 | 230 | 97% |
| Sun 21st Feb | 1201 | 601 | 258 | 43% |
| Thurs 25th Feb | 73 | 37 | 256 | 701% |
| Sat 27th Feb | 892 | 446 | 341 | 77% |
| | | | | |
| Wed 3rd March | 55 | 28 | 303 | 1082% |
| Sat 6th March | 902 | 451 | 296 | 66% |
| Sun 7th March | 1100 | 550 | 302 | 55% |
| Fri 12th March | 178 | 89 | 301 | 338% |
| Sun 14th March | 1050 | 525 | 321 | 61% |
| Thurs 18th March | 77 | 39 | 310 | 805% |
| Sun 21st March | 246 | 123 | 141 | 115% |
| Mon 22nd March | 29 | 15 | 127 | 876% |
| Sat 27th March | 836 | 418 | 186 | 45% |
| | | | | |
| Thurs 1st April | 123 | 62 | 284 | 461% |
| Fri 2nd April- Good Friday | 1070 | 535 | 411 | 77% |
| Sat 3rd April – Easter (severe weather) | 746 | 373 | 401 | 107% |
| Sun 4th April – Easter (severe weather) | 386 | 193 | 358 | 186% |
| Sat 10th April | 1150 | 575 | 336 | 56% |
| Tue 13th April | 204 | 102 | 454 | 445% |
| Sun 18th April | 951 | 476 | 356 | 75% |
| Wed 21st April | 142 | 71 | 287 | 404% |
| Sat 24th April | 921 | 461 | 330 | 72% |
| Sun 25th April – Anzac Day | 1579 | 790 | 422 | 53% |
| Mon 26th April – Anzac Day Holiday | 1127 | 564 | 520 | 92% |

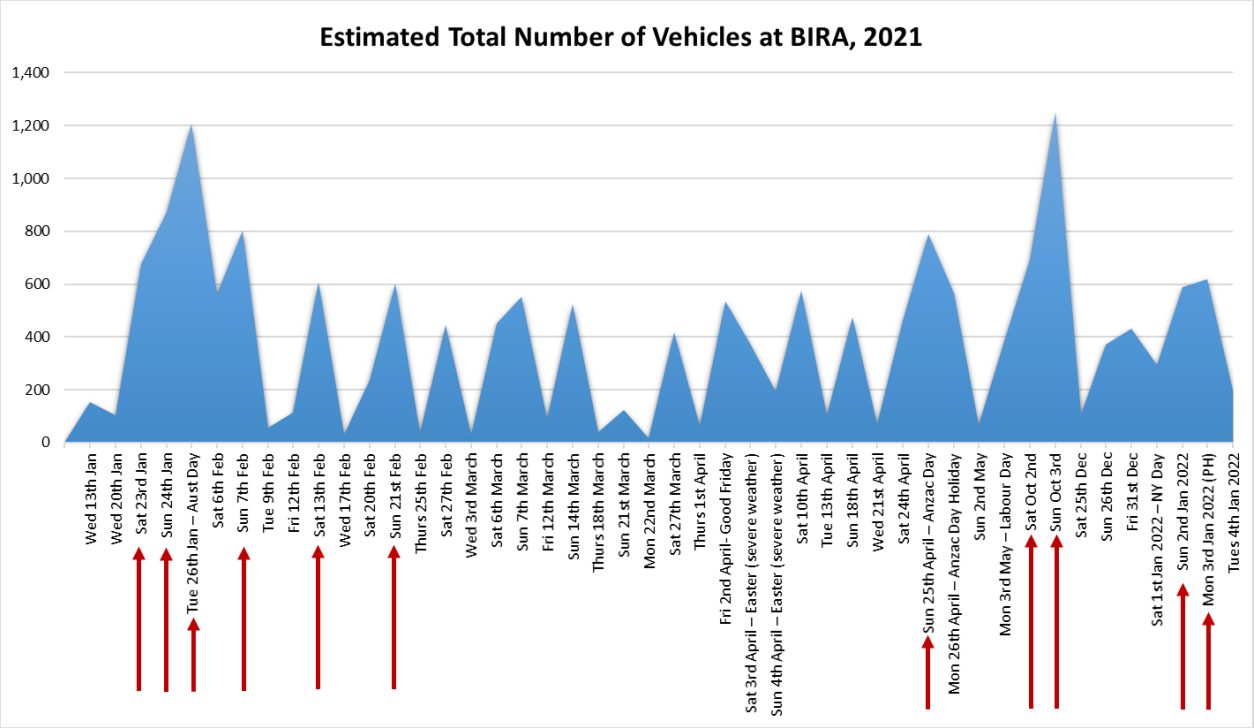
| Dates – BIRA* | Automatic Number Plate Recognition System (ANPRS) Total Daily Reads (All cameras) | Estimated Total Number of Vehicles (Assumes 2 ANPRS reads = 1 vehicle e.g., 1 entry and exit per day) | Total Weekly Vehicle Access Permits (VAPs) (in addition to annual VAPs) | Weekly VAPs Live as a Proportion of Total Daily Traffic Movements (annual VAPs excluded) |
|---|---|---|---|---|
| | | | | |
| Sun 2nd May | 129 | 65 | 280 | 434% |
| Mon 3rd May – Labour Day | 766 | 383 | 261 | 68% |
| Sat Oct 2nd | 1381 | 691 | 655 | 95% |
| Sun Oct 3rd | 2499 | 1250 | 841 | 67% |
| | | | | |
| Sat 25th Dec | 214 | 107 | 506 | 472% |
| Sun 26th Dec | 740 | 370 | 520 | 140% |
| Fri 31st Dec | 831 | 431 | 1415 | 341% |
| | | | | |
| Sat 1st Jan 2022 – NY Day | 589 | 295 | 1410 | 479% |
| Sun 2nd Jan 2022 | 1774 | 587 | 1510 | 170% |
| Mon 3rd Jan 2022 (PH) | 1235 | 618 | 1377 | 223% |
| Tues 4th Jan 2022 | 396 | 198 | 1233 | 623% |

* Data period covers the calendar year from 13th January 2021 to 4th January 2022 – ensuring capture of relevant holiday periods

Points to note include:

- In 2021 there have been 10 days (figure B) where daily vehicle numbers were over 600 (based on the estimate of 2 traffic movements per day recorded by ANPRS), with absolute peaks on:
    - Australia Day weekend (Sunday and Tues – 873 and 1,208).
    - Sunday 3rd October (long weekend) – 1,250.
    - Sunday 7th February – 873.
    - Anzac Day – 790.

Figure B: Peak vehicle days at BIRA, 2021




- The numbers of live weekly VAPs varied quite significantly during these 10 peak days – between 250 and 1,500. The right-hand column in figure A shows that there are many days where the percentage of live VAPs as proportion of total estimated vehicles is over 100% - meaning that a large number of those who purchased weekly VAPs, did not use them on those days i.e., weekly VAPs are being used for single day visits.
- The number of live weekly and annual VAPs is an ineffective measure of daily peak demand – total traffic reads is a more appropriate measure.

**Given best available data sources, it is estimated that peak periods at BIRA can be defined as when there are in excess of 600 vehicles per day*:**

- **An estimated 150 vehicles, related directly to camping when it is fully booked/occupied (weekly and annual VAPs)**
- **An estimated 450 vehicles associated with day visitors.**

* It is accepted that there are limits to this estimate, particularly in terms of fully considering levels of non-compliance, the volume of local resident traffic movements, and those visiting under annual VAPS.

**Capacity Management Options**

The current situation where there are no management controls placed on the maximum number of potential visitors and vehicles on any given day is unlikely to be sustainable in the long term. Use of weekly and annual passes means that there is no enforceable limit on any given single day.

A number of management options can be considered in Figure C.

Figure C: Strengths and Weaknesses of Permitting Options

| | Option | Strengths | Weaknesses |
|---|---|---|---|
| **1** | Continue as per current situation – option of weekly and annual VAPs but focus on compliance and behaviour change. | • Continuity – easily understood by visitors. | • Little management control<br>• No ability to control peak numbers<br>• Local and conservation stakeholders will be unsupportive, given lack of capacity control |
| **2** | Mandate that only daily VAPs will be available to gain vehicle access to BIRA during identified peak periods (analysis identified 10 days at over 600 vehicles in 2021, but peak periods – could reasonably extend to 20 days dependent on public holiday dates/ weekends etc).<br>• Exclusions for camping permits.<br>• Daily VAPs to be allocated via a ballot system if booking systems allow efficient operation. The alternative to a ballot system, is a straightforward "first come, first served" basis.<br>• Pre-booking required.<br>• Terms and conditions for weekly and annual VAPs would need to be amended to exclude the "20 peak period" days.<br>• Option to include a 'gold annual pass' – a premium price product that includes the peak periods.<br>• The option to place a cap of access is available with this option. | • Strong control of total numbers at peak periods.<br>• Offers the ability to introduce peak pricing for peak period daily VAPs. Pricing will need to be sufficient to deter no-shows/ ghost bookings.<br>• Potential to introduce as a pilot measure for a defined period, given the control points at White Patch and Woorim. | • Terms and conditions for weekly and annual VAPs would need to be amended to exclude the "20 peak period" days.<br>• Weekly VAPs would most likely be prohibited for the 7 days period around the peaks.<br>• Mixed levels of probable stakeholder support.<br>• Compliance/monitoring mechanisms are likely to be significant. |
| **3** | As per option 2, but retain the options of weekly VAPs as part of a daily vehicle limit | • As per option 2 | • An added complexity for an updated booking system to address. |
| **4** | Move to a system of daily VAPs only, 365 days of the year – removing the option for weekly and annual VAPs. | • Strong control of total numbers.<br>• Simplified system. | • Pricing would potentially penalise regular visitors. |

| | Option | Strengths | Weaknesses |
|---|---|---|---|
| | | | • May be perceived as prioritising day visits over overnight/ camping stays.<br>• Unlikely to be supported by stakeholders, many of whom have visited BIRA via annual or weekly passes for a significant period of time. |

Assuming that a management regime based on a daily vehicle capacity for peak periods is introduced (as per Figure C, option 2), a range of daily VAP availability scenarios can be considered to assess their impact, as noted in figure D.

Figure: D: Daily VAP Reduction Scenarios[17]

| Daily VAP Reduction Scenario | Potential Impact |
|---|---|
| An approximate **25% reduction in daily VAPs available in the future** compared with the largest peak of daily demand experienced on Australia Day 2021 (1,208 vehicles). | • A limit of **746** daily VAPs being available, in addition to **150 VAPS** which provide camping at maximum capacity – a **total of 896 vehicles**.<br>• If applied to all 11 peak days per year, this would mean **2 days in the year where 2021 demand levels could not be met.** |
| An approximate **33% reduction in daily VAPs available** compared with the largest peak of daily demand experienced on Australia Day 2021 (1,208 vehicles). | • A limit of **650** daily VAPs being available, in addition to **150 VAPS** which provide camping at maximum capacity – a **total of 800 vehicles**.<br>• If applied to all 11 peak days per year, this would mean **3 days in the year where 2021 demand levels could not be met.** |
| An approximate **40% reduction in daily VAPs available** compared with the largest peak of daily demand experienced on Australia Day 2021 (1,208 vehicles). | • A limit of **565** daily VAPs being available, in addition to **150 VAPS** which provide camping at maximum capacity – a **total of 715 vehicles**.<br>• If applied to all 11 peak days per year, this would mean **5 days in the year where 2021 demand levels could not be met.** |

[17] Daily VAP analysis has factored in the purchase of daily VAPs by campers which occurs when camping. Analysis presented under "potential impact" provides an estimate of additional daily VAPs required after provision has been made for campsites operating at full capacity.

| Daily VAP Reduction Scenario | Potential Impact |
|---|---|
| A limit of **500** daily VAPs being available in the future, equivalent to a **59% reduction** compared with the largest peak of daily demand experienced on Australia Day 2021 (1,208 vehicles). | • A limit of **500** daily VAPs being available, in addition to **110 VAPS** which provide camping at maximum capacity – a **total of 650 vehicles**.<br>• If applied to all 11 peak days per year, this would mean **7 days in the year where 2021 demand levels could not be met.** |
| A limit of **450** daily VAPs being available in the future, equivalent to a **63% reduction** compared with the largest peak of daily demand experienced on Australia Day 2021 (1,208 vehicles). | • A limit of **450** daily VAPs being available, in addition to **150 VAPS** which provide camping at maximum capacity – a **total of 600 vehicles**.<br>• If applied to all 11 peak days per year, this would mean **8 days in the year where 2021 demand levels could not be met.** |
| A limit of **400** daily VAPs being available in the future, equivalent to a **67% reduction** compared with the largest peak of daily demand experienced on Australia Day 2021 (1,208 vehicles). | • A limit of **400** daily VAPs being available, in addition to **150 VAPS** which provide camping at maximum capacity – a **total of 550 vehicles**.<br>• If applied to all peak days per year, this would mean **12 days in the year where 2021 demand levels could not be met.** |

Analysis of best available data (2021) points to a combined total of **600 day visitor and camping vehicles** as being the threshold beyond which, the start of peak visitation can be defined.

If the priority is to provide for retention of camping capacity at 77 sites, **150 VAPs should be retained for this camping capacity**, meaning VAPs which then provide for an additional **450 day visitor vehicles.**

Given the imperfectness of data sets, there is potential for a significant margin of error across the data sources. If a cap on capacity was to be trialed, provision for **400 - 500 daily VAPs** is reasonable - **providing for a total of 600 vehicles at the midpoint in this range (450 daily VAPs)**. While COVID-period growth could be expected to moderate (potentially a drop in numbers next year, although the peak days are likely to remain as busy), long-term growth is likely.

# Appendix 5: Summary of site healthcheck and other available environmental inputs

**Healthcheck data**

QPWS has undertaken site healthchecks since 2017, with information from these reviews providing a consistent set of data on current environmental states. Figure E provides a summary of 2017-2018 healthcheck feedback. Many of the issues identified are occurring across the Recreation Area as a whole, albeit being most prevalent at visitor hotspot locations.

Key issues identified are as follows:

**Beach camping**

- Condition is of significant concern for 2017 and 2018. Main indicators and observations:
    - Trampling /erosion at campsites and surrounding areas.
    - Some evidence of recurring vandalism/ graffiti.
    - Bush toileting extensive and evident, including littering from toilet paper.
    - Recurring issue with beach fires and litter.
    - Vehicle movements leading to compaction of beach invertebrates.

**Management Implications/Responses**

- Bush toileting is the most prevalent issue, particularly at the Ocean Beach Camping Area. Impact is in part driven by both volume and visitor behaviour.
- Ground surface damage, spread of footprint, trampling, vehicle impacts are prevalent at all sites. Impact is in part, driven by both volume and visitor behaviour.
- Capacity levels at Ocean Beach were carefully considered at development stage – there is limited ability to extend capacity, given the sensitive location. Management actions need to focus on communication/ education, and compliance/ incentives to change behaviour.

**4WD experience**

- Issues noted include
    - Driving on foredunes (Ocean Beach Camp Site) leading to widening of footprint and impacts on foredunes.
    - Driving on foredunes (Ocean Beach Camp Site) leading to compaction and impact on invertebrates.

**Management Implications/ Responses**

- Issues are generic to the Recreation Area a whole but most prevalent at Ocean Beach – the entry point at Woorim up to Ocean Beach Camp Site and Fort Bribie – issues area associated with volume of traffic, peak period high volumes, safety, and driving/visitor behaviour.
- The majority of pressure comes from day visitors at peak times.
- Some issues caused by inexperienced drivers as well as inappropriate behaviour.
- Capacity/high volumes at peak times is a contributing factor.
- Compliance, including incentives to change behaviour need to be considered.
- Capacity caps can play a role in minimising impact. If implementation is feasible, limiting night-time driving also can potentially be a valuable management tool.
- Communication/ education needs to be part of visitor management techniques used change behaviour and to minimise vehicle impacts.

## Historic Cultural Value (Fort Bribie)

- Deterioration of structures due to weather and age.
- Significant safety issues with structures noted in 2018 re: unauthorised visitor access.

**Management Implications/ Responses**

- Visitor safety is the most pressing management concern - agreed management response is to manage as a ruin.
- The site will continue to be a natural gathering point for visitors, therefore safety will continue to be a recurring management issue

## Natural Values

- The key issues regarding natural values are largely as per previous sections of the report – natural values being detrimentally impacted by traffic on the beach and foredunes habitats, and visitor behaviour/pressure leading to extension of footprint along busy parts of Ocean Beach
- Bush toileting is a noted issue of concern along Ocean Beach at the campsites and 1st/2nd lagoons.
- There is an emerging issue regarding kite surfing and boat and recreation at the northern spit area impacting on foredune key value (Ramsar value). The ocean break-through in early 2022 further served to highlight the fragile environment at the northern end of the island.

Figure E: Healthcheck Summary

| Year | Site | Key Value | # | Indicator | Condition | Notes |
|---|---|---|---|---|---|---|
| **Visitor and Historic Cultural Key Values** | | | | | | |
| 2018 | | **4 - Historic Fort Bribie** | | | | Site 1 – Southern searchlight<br>Site 3 – Gun emplacement 1<br>Site 4 – Northern mine control bunker |
| | Site 1 | | 12 | Safety/restricted access issues | Significant Concern | |
| | Site 1,3,4 | | 6 | Ground surface modification (e.g., erosion, subsidence, compaction, altered drainage) | | Sand erosion impacting searchlight, gun and mine control bunkers. |
| | Site 3 | | 11 | Visitor impacts including vandalism, theft & other inappropriate behaviour | | Some graffiti on Gun 1, safety grill damaged allowing access to structure. Possible fires inside. |
| | Site 1,3 | | 12 | Safety/restricted access issues | | Site 1 – sand dune covering fence on SW corner. Requires sand removal to stop easy access.<br>Site 3 – Gun 1 grill bent allowing access to top platform. If roof collapses death could occur. |
| 2018 | | **5a - Visitor Camping** | | | | Site 1 – Poverty Creek Camping Area<br>Site 2 – Ocean beach campsite 10<br>Site 3 – Ocean beach toilet block +s47 |
| | Site 2 | | 5 | Trampling by visitors or animals | Significant concern | ~30% trample beyond |
| | Site 2 | | 6 | Adequacy of toilet facilities | Significant concern | Plenty, bush toilet (when camping away from toilet blocks there is a high level of bush toileting) |
| | Site 2 | | 2 | Ground surface damage or modification | | Damage to expanded footprint |
| | Site 2,3 | | 4 | Widening/spread of footprint | | Site 2 – 15% widening<br>Site 3 – Shortcut taken |
| | Site 3 | | 5 | Trampling by visitors or animals | | 10% widening |
| | Site 1 | | 6 | Adequacy of toilet facilities | | Wayward mismanagement |
| | Site 2, 3 | | 7 | Vandalism and theft | | Site 2 – Tree damage/graffiti<br>Site 3 – Tree damage at campsite |
| 2018 | | **5c Visitor 4WD** | | | | Site 2 – Eastern Beach Nth<br>Site 3 – Eastern Beach Sth |
| | Site 2,3 | | 4 | Widening/spread of footprint | | Driving on foredune |
| | Site 2,3 | | 8 | Vehicle impacts | | Compaction of beach invertebrates |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Site 2,3 | | 12 | Impacts on wetlands | | Compaction of beach invertebrates |
| **Natural Key Values** | | | | | | |
| 2017 | | **1a - Ramsar Foredune Bribie** | | | | Site 1 – North Spit Bribie<br>Site 2 – North Spit Bribie |
| | Site 1,2 | | | | | Emerging issue: Impact of kite surfing, boating and recreation in the northern spit area |

Healthchecks are undertaken from the perspective of the desired levels of service for the area with consequences/ impact on values defined (Figures F and G).

Figure F: Desired Levels of Service for BIRA

| | |
|---|---|
| Fire management | Very high |
| Pest management | Very high |
| Natural values management | Very high |
| Historic cultural heritage management | High |
| Visitor management | Exceptional |
| Community, partnerships and other interests | Very high |
| Field management capability | Exceptional |
| Operational planning & management support | Exceptional |

Figure G: Definition of Consequences/ Impacts on Key Values

| **Consequence** | **KEY VALUE** | | |
|---|---|---|---|
| | **Natural** | **Visitor** | **Heritage** |
| Catastrophic | The threat is currently destroying, or likely to destroy or be extremely detrimental to the condition of all or most of the value. | | |
| | Impact is possibly irreversible; otherwise, recovery period greater (possibly far greater) than 20 years likely. | Impact is possibly irreversible, and all or a significant proportion of the value (including visitor experience) is likely to be lost. | Impact is irreversible. Near or total destruction of fabric or relics resulting in the loss of a significant proportion of the value. Mitigation of impact is not feasible. |
| | | Safety is a significant concern. | Safety is a significant concern. |
| | | Site closure definite. | Site closure definite. |

| Consequence | KEY VALUE | | |
|---|---|---|---|
| | Natural | Visitor | Heritage |
| Major | The threat is currently or likely to cause severe and long-lasting impacts to all or significant components of the value | | |
| | Recovery period (in the absence of the threat) of 10-20 years likely. | Full/substantial replacement and/or major repairs required. | Majority of heritage fabric is significantly damaged but some or all of the impacts can be mitigated. |
| | | Safety likely to be a significant concern. | Safety likely to be a significant concern. |
| | | Site closure is likely. | Site closure is likely. |
| Moderate | The threat is currently causing or likely to cause detrimental impact to the value or some significant components of it. | | |
| | Recovery period (in the absence of the threat) of 5-10 years likely. | Damage is not permanent and can be remedied. Impact to value can be mostly/fully mitigated if addressed promptly. | Damage to heritage fabric is not permanent and can be remedied. Impact to value can be fully mitigated if addressed promptly. |
| | | Some to substantial remediation/repairs required. Safety concerns likely. | Safety concerns likely. |
| | | Short term site closure may be required. | Short term site closure may be required. |
| Minor | The threat is currently causing or likely to cause minor and reversible impacts only discernible in parts of the value and/or would not impair the overall condition of the value. | | |
| | Minimal and/or short-term ecological impact. | Damage is superficial and easily remediated. Impact on value is temporary and reversible if addressed. | Damage to fabric is superficial and easily remediated. Impact on value is temporary and reversible if addressed. |
| | | Safety concerns unlikely or easily mitigated. | Safety concerns unlikely or easily mitigated. |
| Insignificant | No impact or no discernible effect on the condition of the value. | | |
| | No discernible ecological impact | No impact to visitor experience.<br>No safety concerns | No impact to the value. |
| | | | No safety concerns. |

**Current/ Ongoing Environmental Research**

A range of other environmental research is also currently ongoing throughout BIRA, which can support overall monitoring and assessment of sites.

Figure H: Additional Environmental Research Currently Being Undertaken

| Project title | Project outline | Organisation & researcher | Timeframe |
|---|---|---|---|
| Scientific research, educational research | Scientific Research/Educational – Bribie Island | Madeleine Drying | May 2018-21 |
| Research involving plants | Research involving plants – Bribie Island | Brittany Elliott | 2020 - 2023 |
| Research involving invertebrate animals | Research involving invertebrate animals – Bribie Island Recreation Area | Mark Kennard | 2020 - 2022 |
| Research involving plants | Research involving plants – Bribie Island Recreation Area | Queensland Mycological Society Inc | Mycological |
| Invertebrate surveys of Queensland | Allows the collection of insects, spiders, mites and land snails not listed in Schedules 1, 2, 3, 5 or 6 of the Nature Conservation (Wildlife) Regulation 2006. | Christine Lambkin, The Entomological Society of Queensland Inc. | 8 June 2018 to 7 June 2021 |
| Investigating "Extreme acid tolerance: Overcoming the challenges of life at low pH" Target species – Scarlet sided Pobblebonk | The overall aim of this project is to examine tolerance of low pH waters, exploring mechanisms which promote acid tolerance and the costs and trade-offs to living in these highly demanding environments. Specifically:<br>- Investigate the underlying physiological and morphological mechanisms that promote environmental acid tolerance integrating whole animal, tissue and cellular level responses;<br>- Determine the relative importance of genotypic variation and phenotypic plasticity (adaptation, developmental processes and acclimation) in allowing aquatic animals to successfully inhabit low pH waters<br>- Assess the costs of living in low pH waters and interactions with other potential environmental stressors such as temperature variability | Craig Edwin Franklin | 23 March 2018 to 23 March 2019 |
| Studying conservation planning for mangrove forests with a focus on terrestrial fauna. | The capture and release of listed wildlife using spotlighting, baited camera traps, hair tubes, artificial shelters, bat detectors, Elliott traps and pitfall traps. | Stefanie Marcella Rog | 23 August 2016 to 30 September 2018 |
| BAAM Environmental research surveys | The methodology proposed follows recognised guidelines for terrestrial ecological surveys in Queensland, including targeted habitat assessment | Adrian Caneris | complete |

| Project title | Project outline | Organisation & researcher | Timeframe |
|---|---|---|---|
| in Queensland (various projects and clients as ecological consultants) | and active and passive species detection techniques, and flora transects consistent with the Queensland Herbarium's data recording methodology. | | |
| Canine surveys of koala | The ultimate aim of this project is to provide a scientifically evaluated, effective, and reliable technique for use of detection dogs in koala research and management projects to better understand and conserve this iconic species. | Romane Cristescu | 13 August 2017 to 12 August 2020 |
| Addressing knowledge gaps in the ecology, biology and distributions of Queensland's crayfish fauna – genera *Euastacus, Tenuibranchiurus* and *Cherax*. | This objectives of this project are to:<br>1) address previously identified knowledge gaps on the distributions, taxonomy, biology and ecology, threats and population parameters (including population-size estimates, densities and reproduction) of the Queensland *Euastacus* (as outlined in Furse and Coughran 2011c), *Tenuibranchiurus* (as outlined in Dawkins et al. 2010 and Coughran et al. 2008), *Cherax sp*.,<br>2) Determine the contemporary distribution of the invasive *Cherax quadricarinatus* outside of its native range, in Queensland<br>3) Maintain the data-loggers installed (under permits WITK08599510 and WITK14176014) collecting temperature data on environmental temperatures in typical *Euastacus* habitat from the Queensland Border (Springbrook National Park) to near the northernmost extent of the range of *Euastacus* (Daintree National Park). | James Michael Furse | 17 July 2018 to 16 July 2021 |
| Determining feeding ecology and preferability for key Glossy Black Cockatoo feed-tree taxa (*Allocasuarina* and *Casuarina spp*.) in SE QLD | This research aims to determine what factors are underpinning the choice of feed trees within patches of each species, and at a landscape scale. Specifically, the project will map feed and non-feed trees in the landscape; collect demographic and reproductive data from feed and non-feed trees; collect seed/ cone samples to determine seed:cone ratios and seed nutrient content; conduct germination trials and perform chromosome counts to determine whether any of these factors are influencing feed tree selection. | Gabriel Coombe Conroy, The University of the Sunshine Coast | 27 September 2017 to 26 September 2020 |
| DNA Barcoding of Sunshine Coast Heath to enhance Conservation of Sunshine Coast Heath. | Collect data to answer questions about the diversity of species composition of different types of heath on the Sunshine Coast. As part of this, data will be collected from sites across the Sunshine Coast from Cooloola to Bribie Island. | Hilary Robin Pearl | 20 November 2017 to 19 November 2019 |
| Carbon and nutrient dynamics in different vegetation types in SEQ | The major aim of this research is to investigate the chemical nature, stoichiometric patterns and dynamics of soil and plant carbon and nutrients (N, P) in wetland and forest soils of Queensland. The outcomes of this project will help develop sound | Chengrong Chen | 20 October 2017 to 19 October 2019 |

| Project title | Project outline | Organisation & researcher | Timeframe |
|---|---|---|---|
| | management strategies for conservation and utilisation of wetland and forest ecosystems. | | |
| Taxonomy and biology of Queensland's terrestrial invertebrates | Taxonomy and biology of Queensland Terrestrial Invertebrates (including arachnids, insects, snails, crustacea, worms and velvet worms. | Robert John Raven, Board of the Queensland Museum | 18 September 2017 to 17 September 2020 |
| Exploring acoustic competition between the threatened Australian acid frogs and their competitor sibling species in disturbed wallum wetlands | To quantify the competitive call relationship between acid frog species and their sibling species in disturbed wallum wetland sites along the south-east coast of Queensland. This project will also further our knowledge on the nature of threats experienced by *Litoria olongburensis* from its sibling species *L. fallax* in terms of both call interference and temporal and spatial partitioning. | Alannah Filer | 12 January 2018 to 11 January 2021 |
| Freshwater ecology | Collect fish, invertebrates, plants reptiles | Timothy Howell | 05 March 2018 to 04 March 2021 |
| The role of fire in the management of weed species | Particular fire regimes can be used to assist in the control of some weed species (e.g., Lantana, molasses grass, sicklepod). The conditions (e.g., vegetation type, climate, habitat, fire regime) under which fire may be an effective tool in helping to control specific weeds and promote native species regeneration requires investigation. | QPWS Mark Can't | Priority - high |
| Reproductive biology of fire sensitive plant species in fire adapted ecosystems | Fire adapted communities (i.e., those subject to fire from time to time and requiring it for species regeneration and ecosystem health) often contain species that are killed by fire or otherwise are sensitive to particular fire regimes (e.g., *Prostanthera clotteniana*). An important component of determining appropriate fire regimes for ecosystems is understanding critical characteristics of these species' fire ecology (e.g., time taken to reach reproductive maturity).<br><br>These species are considered indicators for evaluating the appropriateness of fire regimes and fire management practices. | QPWS Rowena Thomas | Priority - medium |
| The effectiveness of fuel reduction burning | Fire is a major tool used in reducing fuel loads where property protection is an important consideration and is becoming increasingly used in urban and semi-urban areas where houses are in close proximity to bushland. There is often little evaluation of the effectiveness of fuel reduction burning in reducing wildfire risk, or in other words, examination of the amount and type (e.g., spatial arrangement) of fuel reduction burning required to reduce risk to an acceptable level, and the associated trade-offs (e.g., impacts on biodiversity/landscape values, lifestyle). | QPWS – Peter Leeson | Priority - medium |

| Project title | Project outline | Organisation & researcher | Timeframe |
|---|---|---|---|
| The role of fire in the rehabilitation of former pine plantation on Bribie Island | Extensive areas of Bribie Island that were previously planted to pine have become national park and as such are to be rehabilitated to native vegetation. One tool for doing this is to use fire to control the pine wildings and to promote native species regeneration. The areas have been cleared of adult pine (much was destroyed in a severe wildfire in 1994) and have varying amounts of young pine. Little is known about the current use of the area by native fauna. Other rehabilitation methods may also be used. | QPWS – John Esdaile | Priority - medium |
| The ability of resprouting plant species to recover after frequent and/or high intensity fires | Plant species that recover after fire by vegetatively resprouting are generally regarded as being well adapted to fire. However, under conditions of high fire frequency and/or high intensity it is possible for these species to show very poor recovery. Common species such as *Banksia aemula* can be severely affected under such conditions with little regrowth of the crown. This leads to significant changes in the structure of the vegetation. | QPWS Rowena Thomas | Priority - medium |
| Reproductive biology of selected rare or threatened flora. | Appropriate management of rare and threatened flora should aim for a situation where natural populations are self-maintaining, and threatening processes are removed or minimised. An understanding of the factors that may influence the ability of a plant to be self-maintaining is critical to the identification of appropriate management techniques. For example, a knowledge of the time for a species to reach reproductive maturity allows the application of a fire regime appropriate for achieving long term reproductive success. This and information on other similarly vital factors is lacking with regard to a number of rare and threatened species in southeast Queensland (e.g., *Boronia rivularis, Acacia attenuata, Zieria bifida* and *Banksia conferta*) and Queensland generally. | QPWS Rowena Thomas | Priority - medium |
| Dynamics of *Melaleuca quinquenervia* wetlands | We know very little about the role of fire in Melaleuca wetlands, making this vegetation type a priority for research. A study of aerial photos from the 1940s to the 1980s revealed that Melaleuca patches are not static – they appear and disappear over time (C. Sandercoe, 2001, pers. comm.). This movement could be related to fire (peat fire?), drought, and post-fire availability of water. | QPWS Rowena Thomas | Priority - medium |
| Impacts, and implications for management, of expanding residential development in close proximity to protected areas. | Population expansion, especially in close proximity to parks, and the consequent increased pressure and influence on existing infrastructure, resources (human, financial, natural, cultural) and management (e.g., pests and fire) pose challenges for management. | QPWS Dr Rhonda Melzer | Priority - medium |

| Project title | Project outline | Organisation & researcher | Timeframe |
|---|---|---|---|
| Identification of the weeds currently (or likely to become) of greatest threat to ecosystems in protected areas - preventative measures and control options | QPWS manages over 1100 properties, covering approximately 12.5 million hectares, including more than 300 national parks, 400 state forests and 400 other reserves. It is necessary to prioritise pest control efforts to target those species which significantly threaten key values on QPWS estate and neighbouring properties. | QPWS Mark Cant | Priority - high |
| Quantification of the impacts of feral pigs and triggers for management action. | Large amounts of resources are focused annually on controlling feral pigs on protected areas. Pig impacts range from preventing recruitment of key plant species in ecosystems to predation on turtle eggs and hatchlings, to physical damage in wetlands from rooting and wallowing. Pigs range widely depending on seasonal conditions and can never be eradicated on mainland reserves. The economic impacts of pigs are well understood but their ecological impacts are often poorly known or quantified. | John Clarkson | Priority - high |
| The contribution of 'old' fire age classes to ecosystem biodiversity. | QPWS, as with many land management agencies, recommends particular temporal, spatial and seasonal burning regimes for the fire management of ecosystem types on protected areas. In all cases, where the purpose of fire management is conservation, the recommended temporal component of the fire regime is given as a range (e.g., time between burns for heathland: 8-20 years) with the expectation that across the landscape the broad spectrum of age classes will be represented for any particular ecosystem. Increasingly however, particularly with urban expansion, ecosystems are burnt at the more frequent end of the recommended range. | QPWS Dr Rhonda Melzer | Priority - high |
| Peat ecosystems in protected areas - their ecology and management | Significant areas of peat-based ecosystems occur on parks from southern to northern coastal Queensland and some inland sites (e.g., Salvator Rosa). Some of these have been fairly well studied (e.g., Fraser Island) while others have received little or no attention. Serious concerns are held nationally for the survival of peat-based ecosystems with climate change. Significant areas have been lost in Tasmania as a result of fires - in areas where fire would previously never have been a threat. Some peat beds have also been destroyed by fire in Queensland in recent times (e.g., Byfield National Park). | QPWS Dr Rhonda Melzer | Priority - high |
| Effect of fire on habitat and populations of the vulnerable | The acid or wallum frogs (*Litoria cooloolensis*, *L. freycineti*, *L. olongburensis* and *Crinia tinnula*) are a unique suite of species adapted to the low-nutrient low pH waters of the wallum of SEQ and northeast | QPWS Rowena Thomas, Harry Hines | Priority - high |

| Project title | Project outline | Organisation & researcher | Timeframe |
|---|---|---|---|
| "acid frog" species | NSW. Due to habitat loss, fragmentation and degradation three of the species are listed as vulnerable. The majority of populations in Qld fall within the protected area estate. Their core habitat are the highly fire prone sedge and heathlands. In some areas, especially on the Sunshine and Fraser Coast these protected areas are subjected to frequent fires, either wildfire or planned burns. | | |
| Investigation of biocontrol for Asparagus weeds in SEQ | Asparagus weeds (climbing asparagus *plumosus*; *A. africanus*; ground asparagus *A. aethiopicus*) are highly invasive vines or sprawling shrubs which establish readily in both disturbed and intact ecosystems in a range of conditions. Significant impacts are evident in coastal areas of SEQ. Asparagus weeds are declared Class 3 pest plants under the *Land Protection (Pests and Stock Route Management) Act 2002* and are also listed as Weeds of National Significance. Investigate potential biocontrol agents for asparagus weeds. | QPWS Mark Cant (Jenise Blaik) | Priority - medium |

**Other inputs on environmental issues (including stakeholder consultation)**

**Alignment with tourism vision for the island**
Moreton Bay Regional Council is currently in the process of preparing a tourism strategy/ opportunities plan for the whole of the Council area including Bribie Island. A tourism plan/strategy specifically for Bribie Island is not currently in place.

Council's Regional Economic Development Strategy 2017-2022 note that *"The tourism industry generates substantial economic benefits for the Moreton Bay Region. One of the important factors contributing to the success of tourism in the region is council's partnership with our local tourism operator, Moreton Bay Region Industry & Tourism (MBRIT). Council will continue to work with MBRIT in delivering signature events and conferences, whilst continually enhancing and increasing the quality of the region's tourism products and services."*

Bribie Island is recognised as one of the region's visitor hubs for visitor accommodation and experiences, albeit that much of activity is currently beach and day visitor focused. Strategically there are seen to opportunities to expand the quality and range of accommodation and to build towards being Olympics-ready by 2032. An expanded range of ecotourism and nature-based experiences which align with the Island's natural assets are seen as an important part of this process. Local stakeholders are currently considering options to build a future vision for tourism on the island built around these opportunities, based on principles such as high quality tourism, building value over volume, and sensitive management. In practical terms this type of vision means either attracting new visitor markets or converting a proportion of the existing market who are visiting primarily for beach or 4WD activities to undertake a broader range of nature-based activities.

This type of tourism vision for the island as a destination aligns closely with the sustainable visitor management recommendations made in this study – a vision that focuses on value over volume and built on nature-based experiences and sustainable visitor management.

**Stakeholder input on environmental considerations**
Local and conservation stakeholders made strong representations regarding a range of issues that they felt need to be considered within a sustainable visitor management:

- The need for a detailed management plan for the area that considers all aspects of environment, community, heritage, and economic considerations.
- The importance of scientific input as a basis for sustainable visitor management actions, covering areas such as species/habitat research, relevant baseline studies, environmental impact studies and First Nations/European heritage and cultural studies.
- Consideration of relevant legislation when developing sustainable visitor management recommendations including National and Marine Park status, the Nature Conservation Act, and the Ramsar Convention.
- The importance of a balanced approach to sustainable visitor management where all aspects are considered, not just recreation needs. The current focus on accommodating 4WD activity is seen as not aligning with National Park values and does not achieve the desired balance.
- Consideration of the bigger picture on climate change and issues such as plastics in the ocean.
- The recommendation for a shared vision of a tourism model that is based on nature-based values, including a focus on volume over value.

- Concern that the current approach to management is unbalanced towards meeting recreation demand and inappropriate/destructive forms of recreation without a comprehensive science-based management plan. The current inability to manage capacity/demand is a management concern.
- Concern that volume of visitor traffic and visitor behaviour have a direct impact on species and habitats on the island including:
    - Compaction in the intertidal zone which impacts on invertebrates and other species.
    - Damage to dunes/foredunes habitats.
    - Turtle nesting/hatching.
    - Traffic volume impacting on species on the Island's roads.
    - Bird life (particularly at the northern end of the island).
    - Marine life, associated with boat and jet skis, including Ocean Beach and the Pumicestone Passage side of the Island.
- Visitor traffic volumes on the Island impacting on quality of life for residents.
- A range of visitor management suggestions were identified including:
    - The importance of having a clear tourism model for the island based on sustainable tourism.
    - A refocus on visitor activities aligned more closely with sustainable tourism activities.
    - The importance of communication as a visitor management tool alongside compliance measures.
    - Limiting night-time driving on the beach as an environmental management measure.
    - Reducing volumes of traffic accessing Ocean Beach – scale of activity at peak times is a major concern at present.
    - Measures which help the environment to rejuvenate – the reduction in human interaction during the COVID-19 period demonstrated how quickly habitats can change.

# Appendix 6: Summary capacity assessment against DPISR framework

DPSIR is a causal framework for describing the interactions between society and the environment: Human impact on the environment and vice versa because of the interdependence of the components.

The European Environment Agency have adopted this framework. The components of this model are:

- Driving forces: e.g., industry, tourism, economic growth, population.
- Pressures: e.g., pollution, land-use change, population growth.
- States: e.g., water quality, soil quality, air quality, habitat, vegetation.
- Impacts: e.g., visitor experience, ill public health, habitat fragmentation, economic crisis, environmental damage, biodiversity loss.
- Responses: e.g., policy, regulations.

## Focus on Area-wide DPISR Analysis

Site review and analysis of available data identified that many of the drivers, pressures and impacts at BIRA Area-wide, therefore capacity and sustainable visitor management analysis conducted during the study largely took a 'whole of area' perspective.

While many aspects of demand and pressures are Area-wide, impacts are often most prevalent in visitor hotspots (sites such as the main entry point at Woorim, the lagoons area and Ocean Beach Campsite). As such, responses and management recommendations reflect his balance of area-wide and site-specific requirements.

## Focus on Area-wide DPISR Analysis

Figure I shows the proforma used as the basis for gathering information to inform this study. Issues from analysis to note are as follows:

### Drivers

- Drivers are predominantly Area-wide in scope. Local and regional population growth being identified as a key demand drivers. Growth projections are particularly strong around the Caboolture-west hub.
- Bribie Island (including BIRA) has long been established as a recreation and tourism area for local people – while volume of activity has been increasing significantly, the types of activity i.e., 4WD use are well established.
- The decade-long trend in participation in nature-based tourism is a driver at national level – if anything, demand has further heightened during and post-COVID-19.
- General leisure trends in terms of 4WD, RV, and caravan sales accelerated during the COVID-19 period.
- Values and management intent are well established via existing management planning. BIRA is managed to the Exceptional Level of Service for visitor management due to the significant number of visitors; its status as a tourism destination; and the need to conserve the high natural values which are critical to the visitors' experience. Exceptional is the highest Levels of Service (LoS) benchmark used to set the desired management standards across all Queensland National Parks.

- Sentiment from a range of stakeholders (community, businesses, visitors, Traditional Owners, public sector stakeholders, conservation groups) is recognised as an important driver for the area. Sentiment is largely well understood and has been factored into ongoing management planning, however, the surveys conducted during the study (community, user and tourism & business) provide an additional layer of detail.

**Implications for the study/ application of the study methodology**

As a whole, drivers are well understood. Information available during the study provided a sound basis for analysis. A range of environmental data was available during the study, ensuring input from this perspective.

Regarding future capacity and sustainable management monitoring, datasets and mode of research is replicable.

### Pressures

Pressures were assessed in the form of levels and types of usage generated by demand drivers i.e., in practical terms, the number and peak levels of visitors and their activities.

Issues from analysis to note are as follows:

- Day visitor pressures are significant for BIRA – more so, than the other sites reviewed in this study – Cooloola and K'Gari (Fraser Island).
- Type of preferred leisure activity/ motivation for travel is a key issue – scenic drives and 4WD use are a dominant reason to visit among current visitor markets.
- Natural seasonality in tourism and leisure creates challenges with long weekends and school holidays providing peaks.
- Much of visitation to BIRA can be more accurately described as local recreation than tourism, however, the nature of activities is very similar.
- The nature of access/egress is a pressure point, with the majority of traffic entering and leaving at Woorim.
- Pressures are felt at hotspots along Ocean Beach – at Woorim, first and second lagoons, Ocean Beach Campground and Fort Bribie.
- Stating the obvious – visitor volumes (at peak times and cumulatively) present challenges for habitats and species, and First Nations/ European culture and heritage.
- Community and user surveys provided valuable activity and visitor profile data to complement previous visitor surveys, observation and experience noted by the QPWS team.
- Primary data sources for usage pressures were ANPRS records, booking records, VAP purchases. Adoption of ANPRS has provided a boost to understanding of site usage, however, datasets are imperfect with regard to fully informing capacity levels:
    - The mix of weekly and annual VAPs means that determination of a total numbers of different categories of visitors accessing the site at any given time is problematic at present.

- ANPRS provides for a much greater understanding of vehicle numbers, however there are limitations – multiple entry points to the area and counting of 'vehicle movements' i.e., the same vehicle can be picked up on the cameras on multiple occasions if it is moving in and out of the area.
- Other data such as traffic movements complements QPWS data.
- ANPRS provides data on vehicles, not individual visitors.
- Non-compliance with VAP or camping permit requirements, means that permit records are also open to some interpretation from the perspective of understanding usage and determining capacity limits.
- QPWS has a body of data that enables trend analysis to be undertaken.
- Understanding of individual sites is largely built on inputs from observation and experience rather than large datasets – the open nature of the area (excluding campsites) means that individual numbers are difficult to understand outside counts at a specific point in time.
- Environmental understanding draws on QPWS healthchecks and other individual research studies available during preparation of the study.

**Implications for the study/ application of the study methodology**

As a whole, pressures are well understood at Area-wide level, and provide a reasonable basis for capacity modelling and development of sustainable visitor management responses, however there are weaknesses in available datasets. Data is also more limited at site level. Considerations for ongoing monitoring and application of the methodology for other sites include:

- Continued adoption of technological solutions and improved connectivity are crucial to better longer term understanding of pressures and usage. Automation across compliance and booking systems is also an important enabler.
- Camping and access permits which incorporate data on individual visitors as well as per site or per vehicle or per campsite. At present an accurate measures of total visitors at a particular point in time are not available.
- If connectivity is improved, telco data which records mobile phone presence at very small geographic areas can offer a step-change in real-time understanding visitor movement and clustering.
- Ideally, more detailed environmental management data would be factored in as an input into ongoing monitoring, but in practical terms, it is recognised that resources need to be directed to those sites and subject matter of greatest priority.

Datasets are imperfect, however, the methodology used to understand usage patterns and peak capacity periods is replicable (as a measure/monitor for this site, and at other National Park locations). The methodology can be complemented by improved monitoring as it comes on stream.

### State

Information on state was informed by a mix of data, observation and experience from stakeholders. The focus of the study on capacity and visitor management at the Area-wide level, placed limits on detailed analysis at individual site level.

Issues from analysis to note are as follows:

- Environmental data was derived primarily from site healthchecks, and other individual datasets/studies. Data has been complemented by QPWS team observation and experience, and evidence from other available research studies. Stakeholder surveys also provided information on sentiment towards environmental state.
- Inputs on social attributes are relatively strong, sourced from a mix of compliance data and stakeholder sentiment/ satisfaction feedback.
- Healthchecks provided records of issues noted for individual sites including degraded habitats and environments, with bush toileting and damage to dunes/areas surrounding camping zones and visitor hubs. Community, business, and permit holder responses to surveys undertaken indicate that degraded habitats and environments is the area of most significant concern.
- Policy records and compliance statistics provide a strong record regarding safety issues.
- Records on camping occupancy were sourced from QPWS's booking system. Good trend information is available.

**Implications for the study/ application of the methodology**

As the study focused on Area-wide capacity and management, detail identified on state at individual site level has been more limited. Observations include:

- An additional level of detail/ inputs is required when considering individual site capacities and management solutions.
- An area-wide framework provides the basis for management plans for individual sites, with healthcheck data providing an excellent initial input.

### Impacts

Review of stakeholder survey data and available environmental management information suggests that behavioural issues, and peak/ cumulative visitation contribute to:

- Decreases in experience levels of visitors.
- Loss of amenity for residents who are closest to traffic queues and visitor hubs.
- Pressures on habitats and species (intertidal zone, foredunes habitat, bird life, marine life).
- Pressures on First Nations/European heritage.

Research during the study has confirmed that capacity issues manifest themselves at BIRA, particularly during peak visitation periods. Key issues to note are:

- Evidence demonstrates there are capacity impacts, especially at peak times.
- Evidence demonstrates demand will continue to increase, driven by population growth and societal/leisure trends.
- Bribie Island is complex – a mix of growing resident/retirement populations, plantations, alongside the National Park estate, contributes to people visiting the Island as a whole and BIRA for a range of reasons, however pressure from recreation/tourism is a significant contributory factor to observed impacts
- There are currently no accurate means to measure and regulate overall visitor numbers, including day visitor peaks.

Impacts include:

- Natural pinch points, including the main access point at Woorim. Visitation hits daily peaks at entry/leaving times – queuing traffic, noise and associated behavioural issues are most severe at these times.
- High numbers of vehicles on the beach during peak holiday periods, with particular concentration at hotspots
- Clustering of visitors at hotspots.
- Perception and optics – large streams/ parking of 4WDs on the beach can be perceived as being at odds with management values.
- Environmental and habitat challenges, the most significant of which in the context of a busy Recreation Area environment are litter, the impact of bush toileting, hardening/creep of areas surrounding campsites, damage to dune ecosystems, and impact on species in the intertidal zone/ dunes habitat.
- All stakeholder groups rated conservation and enhancement of the environment as the most important value for the area, however different stakeholder groups are impacted by high visitation levels in different ways;
    - Permit holders/ visitors are concerned primarily by falling experience levels.
    - Communities have a focus on conservation values and impacting on local amenity.
    - Conservation and environmental stakeholders have concerns regarding a range of issues regarding setting and habitat including damage to dune habitats and impact on flora/ fauna on the beach and inter-tidal zone.
    - Behavioural issues were seen as being a significant cause of impacts alongside peak visitor volumes - the impact of bush toileting at hotspots and driving which impact on species on the beach and the dunes zones were particular issues noted.

**Implications for the study/ application of the methodology in the future**

Levels of service and values set out management intent and provide a clear basis from which impacts, and management responses can be made.

## Proforma for DPISR Site Assessment/ Inventory

Figure I: Site Assessment Proforma

### Site/ Area Description

- Site description/Area description — Data ☒ Observation ☒ Experience ☒
- Location relative to main urban areas/source markets — Data ☒ Observation ☒ Experience ☒

### Access

- Access route – road, beach, etc — Data ☒ Observation ☐ Experience ☐
- Condition of access routes — Data ☐ Observation ☒ Experience ☐
- Site access and use controls
  - VAP — Data ☒ Observation ☒ Experience ☒
  - Camping Permit — Data ☒ Observation ☒ Experience ☒

### Drivers

**Demographics**

- Local population — Data ☒ Observation ☐ Experience ☐
  - 2021/2040 population
- SEQ population — Data ☒ Observation ☐ Experience ☐
  - 2021/2040 population

**Values**

- Management plan/statement , draft visitor strategy — Data ☒ Observation ☒ Experience ☒

**Management Intent**

- Management plan/statement , draft visitor strategy — Data ☒ Observation ☐ Experience ☐
- Consultation with QPWS teams — Data ☐ Observation ☒ Experience ☒

**Traditional Owner Expectations**

- Consultation — Data ☐ Observation ☒ Experience ☒
- Existing input into management planning — Data ☒ Observation ☐ Experience ☐

**User Expectations**

- User survey — Data ☒ Observation ☐ Experience ☐
- Business and tourism survey — Data ☒ Observation ☐ Experience ☐
- Stakeholder interview — Data ☐ Observation ☒ Experience ☒

**Resident Expectations**

- Community survey — Data ☒ Observation ☐ Experience ☐
- Stakeholder interview — Data ☐ Observation ☒ Experience ☒

**Socio-political Expectations**

- Consultation with key stakeholders — Data ☐ Observation ☒ Experience ☒

## Pressures

- Annual use – vehicles — Data ☒ Observation ☒ Experience ☒
- Annual use – campers — Data ☒ Observation ☒ Experience ☒
- Annual use – day visitors — Data ☒ Observation ☒ Experience ☒
- Trend in annual usage — Declining ☐ Stable ☐ Increasing ☒ Rapidly increasing ☐
- Forecast increased usage — Data ☒ Observation ☐ Experience ☐
- Peak daily usage — Data ☒ Observation ☐ Experience ☐
- Peak hourly usage — Data ☒ Observation ☒ Experience ☒
- Peak times of usage — AM ☒ PM ☒ Evening ☐ All ☐
- Visitor profile – predominant users — Single ☐ Couple ☐ Family ☒ Group ☒ Other ☐
- Age/socio-demographic profile — Data ☒ Observation ☒ Experience ☒
- Overall leisure trends — Data ☒ Observation ☒ Experience ☒
- Predominant user activities
  - User/resident survey sentiment — Data ☒ Observation ☒ Experience ☒
  - Consultation feedback — Data ☒ Observation ☒ Experience ☒

## State – Flora and Fauna

**Vegetation** - healthchecks

- Attrition — Data ☒ Observation ☒ Experience ☒
- Natural resilience — Data ☒ Observation ☒ Experience ☒
- Extent of weeds — Data ☒ Observation ☒ Experience ☒

**Soil/ sand**

- Compaction — Data ☒ Observation ☒ Experience ☒
- Extension of footprints — Data ☒ Observation ☒ Experience ☒

**Water quality**

- Recreational use — Data ☒ Observation ☒ Experience ☒
- Ground water — Data ☒ Observation ☒ Experience ☒

**Wildlife (disturbance)**

- Habitat loss — Data ☒ Observation ☒ Experience ☒
- Unintentional feeding — Data ☒ Observation ☒ Experience ☒
- Intentional feeding — Data ☒ Observation ☒ Experience ☒
- Feral predators — Data ☒ Observation ☒ Experience ☒
- Domestic pets — Data ☒ Observation ☒ Experience ☒

**Naturalness (in relation to values)**

Predominance of

- Nature — Data ☐ Observation ☒ Experience ☐
- Constructions — Data ☐ Observation ☒ Experience ☐
- Human presence — Data ☐ Observation ☒ Experience ☐

**Evaluation against management intent**

- Acceptable? — Data ☒ Observation ☒ Experience ☒
- Intent threatened? — Data ☒ Observation ☒ Experience ☒
- Exceeds acceptable change? — Data ☒ Observation ☒ Experience ☒
- Management intervention
  - Maintain current management regime? — Data ☒ Observation ☒ Experience ☒
  - Monitor? — Data ☒ Observation ☒ Experience ☒
  - Increase current practice? — Data ☒ Observation ☒ Experience ☒
  - New action? — Data ☒ Observation ☒ Experience ☒

## State – Social Attributes

**Noise**

- Ambient/ peak daily levels — Data ☐ Observation ☐ Experience ☐

**Crowding**

- Max number of campsites per zone — Data ☒ Observation ☐ Experience ☐
- Max number of daily visitors — Data ☒ Observation ☐ Experience ☐

**User conflicts**

- Complaints data — Data ☒ Observation ☐ Experience ☐
- User/resident survey benchmarks — Data ☒ Observation ☐ Experience ☐

**Safety**

- Reported number of incidents — Data ☒ Observation ☐ Experience ☐
- User/resident survey benchmarks — Data ☒ Observation ☐ Experience ☐
- User/resident survey benchmarks — Data ☒ Observation ☐ Experience ☐
- Number of QPS/ranger PINs, offences — Data ☒ Observation ☐ Experience ☐

**User satisfaction**

- User/resident survey benchmarks — Data ☒ Observation ☐ Experience ☐
- Number of complaints — Data ☒ Observation ☐ Experience ☐

**Evaluation against management intent**

- Acceptable? — Data ☒ Observation ☒ Experience ☒
- Intent threatened? — Data ☒ Observation ☒ Experience ☒
- Exceeds acceptable change? — Data ☒ Observation ☒ Experience ☒
- Management intervention
  - Maintain current management regime? — Data ☒ Observation ☒ Experience ☒
  - Monitor? — Data ☒ Observation ☒ Experience ☒
  - Increase current practice? — Data ☒ Observation ☒ Experience ☒
  - New action? — Data ☒ Observation ☒ Experience ☒

## State – Management Attributes

**Utilities and Services**

- Adequacy of power, water, sewerage, rubbish collection? Data ☒ Observation ☒ Experience ☒

**Facilities (where appropriate)**

- Picnic tables Data ☒ Observation ☒ Experience ☒
- Shelters Data ☒ Observation ☒ Experience ☒
- Barbecues Data ☒ Observation ☒ Experience ☒
- Play equipment Data ☒ Observation ☒ Experience ☒
- Bins/skips Data ☒ Observation ☒ Experience ☒

- Days at maximum capacity? Data ☐ Observation ☒ Experience ☐
- Well maintained, needs maintenance, deterioration, safety concerns? Data ☐ Observation ☒ Experience ☐

**Camping**

- Numbers of pitches Data ☒ Observation ☐ Experience ☐
- Days at maximum capacity Data ☒ Observation ☐ Experience ☐
- Numbers of permits sold Data ☒ Observation ☐ Experience ☐

**Potable Water**

- Sources – mains, treated aquifer, tank? Data ☒ Observation ☒ Experience ☐
- Uses – showers, taps Data ☒ Observation ☒ Experience ☐
- Water usage levels Data ☒ Observation ☒ Experience ☐

**Toilets**

- Numbers of male, female, unisex Data ☒ Observation ☒ Experience ☐
- Type of provision – flush, sewer, septic, vault Data ☒ Observation ☒ Experience ☐
- Unit/ system condition Data ☒ Observation ☒ Experience ☐

**Parking**

- Numbers of formal/informal spaces Data ☒ Observation ☒ Experience ☒
- Safety/ management concerns Data ☒ Observation ☒ Experience ☒

**Evaluation against management intent**

- Acceptable? Data ☒ Observation ☒ Experience ☒
- Intent threatened? Data ☒ Observation ☒ Experience ☒
- Exceeds acceptable change? Data ☒ Observation ☒ Experience ☒
- Management intervention
  - Maintain current management regime? Data ☒ Observation ☒ Experience ☒
  - Monitor? Data ☒ Observation ☒ Experience ☒
  - Increase current practice? Data ☒ Observation ☒ Experience ☒
  - New action? Data ☒ Observation ☒ Experience ☒

## State – Management Attributes (Communication)

**Communication – pre-visit (QPWS)**

- Location values Data ☒ Observation ☒ Experience ☒
- Protective behaviour Data ☒ Observation ☒ Experience ☒
- Use opportunities Data ☒ Observation ☒ Experience ☒
- Use explicit Data ☒ Observation ☒ Experience ☒
- Safety precautions Data ☒ Observation ☒ Experience ☒
- Sources of info – social media, website, print Data ☒ Observation ☒ Experience ☒

**Communication – pre-visit (others including Moreton Bay Regional Council, Moreton Bay Region Industry & Tourism (MBRIT)**

- Location values Data ☒ Observation ☒ Experience ☒
- Protective behaviour Data ☒ Observation ☒ Experience ☒
- Use opportunities Data ☒ Observation ☒ Experience ☒
- Use explicit Data ☒ Observation ☒ Experience ☒
- Safety precautions Data ☒ Observation ☒ Experience ☒
- Sources of info – social media, website, print, signposting Data ☐ Observation ☒ Experience ☐

**Communication – on site orientation and interpretation**

- Location values Data ☒ Observation ☒ Experience ☒
- Protective behaviour Data ☒ Observation ☒ Experience ☒
- Use opportunities Data ☒ Observation ☒ Experience ☒
- Use explicit Data ☒ Observation ☒ Experience ☒
- Safety precautions Data ☒ Observation ☒ Experience ☒
- Sources of info – signage, brochure/map Data ☒ Observation ☒ Experience ☒

**Evaluation against management intent**

- Acceptable? Data ☒ Observation ☒ Experience ☒
- Intent threatened? Data ☒ Observation ☒ Experience ☒
- Exceeds acceptable change? Data ☒ Observation ☒ Experience ☒
- Management intervention
  - Maintain current management regime? Data ☒ Observation ☒ Experience ☒
  - Monitor? Data ☒ Observation ☒ Experience ☒
  - Increase current practice? Data ☒ Observation ☒ Experience ☒
  - New action? Data ☒ Observation ☒ Experience ☒

## State - Cultural Attributes

**Traditional Owner values**

- Consultation — Data ☐ Observation ☒ Experience ☒
- Input into existing management planning — Data ☐ Observation ☒ Experience ☒

**Historical values**

- Consultation — Data ☐ Observation ☒ Experience ☒
- Literature review — Data ☐ Observation ☒ Experience ☒

**Evaluation against management intent**

- Acceptable? — Data ☒ Observation ☒ Experience ☒
- Intent threatened? — Data ☒ Observation ☒ Experience ☒
- Exceeds acceptable change? — Data ☒ Observation ☒ Experience ☒
- Management intervention
  - Maintain current management regime? — Data ☒ Observation ☒ Experience ☒
  - Monitor? — Data ☒ Observation ☒ Experience ☒
  - Increase current practice? — Data ☒ Observation ☒ Experience ☒
  - New action? — Data ☒ Observation ☒ Experience ☒

## Impact

**Environmental**

- Healthchecks — Data ☒ Observation ☒ Experience ☒
- Additional research/ monitors — Data ☒ Observation ☒ Experience ☒
- Stakeholder feedback/surveys — Data ☒ Observation ☒ Experience ☒

**Social**

- Stakeholder feedback/surveys - sentiment — Data ☒ Observation ☒ Experience ☒

**Economic**

- Stakeholder feedback/surveys — Data ☒ Observation ☐ Experience ☐
- Business sentiment — Data ☒ Observation ☐ Experience ☐

## Response Options

**Modification of site/area use**

- Communication – pre visit and on site Data ☒ Observation ☒ Experience ☒
- Capacity caps/constraints Data ☒ Observation ☒ Experience ☒
- Pricing measures to incentive change Data ☒ Observation ☒ Experience ☒
- Enhanced Compliance and incentives for behaviour change Data ☒ Observation ☒ Experience ☒
- Dispersal measures Data ☒ Observation ☒ Experience ☒
- Zoning to limit user conflict Data ☒ Observation ☒ Experience ☒

**Modification of site character/ patterns of usage**

- Upgrade facilities Data ☒ Observation ☒ Experience ☒
- Alter vegetation Data ☒ Observation ☒ Experience ☒
- Formalise use in hardened areas Data ☒ Observation ☒ Experience ☒
- Increase site hardening Data ☒ Observation ☒ Experience ☒

**Improved understanding/management tools**

- Improved measurement/monitoring Data ☒ Observation ☒ Experience ☒
- Safety enhancements

# Appendix 7: Bribie Island Visitor Market

Visitor market analysis is based on Tourism Research Australia's International Visitor Survey and National Visitor Survey datasets. Visitor profiles were created using 3-year average from 2015 to 2019 for Bribie Island (SA2).

**Tourism Market Trend in Bribie Island: five-year trend analysis (2015-2019)**

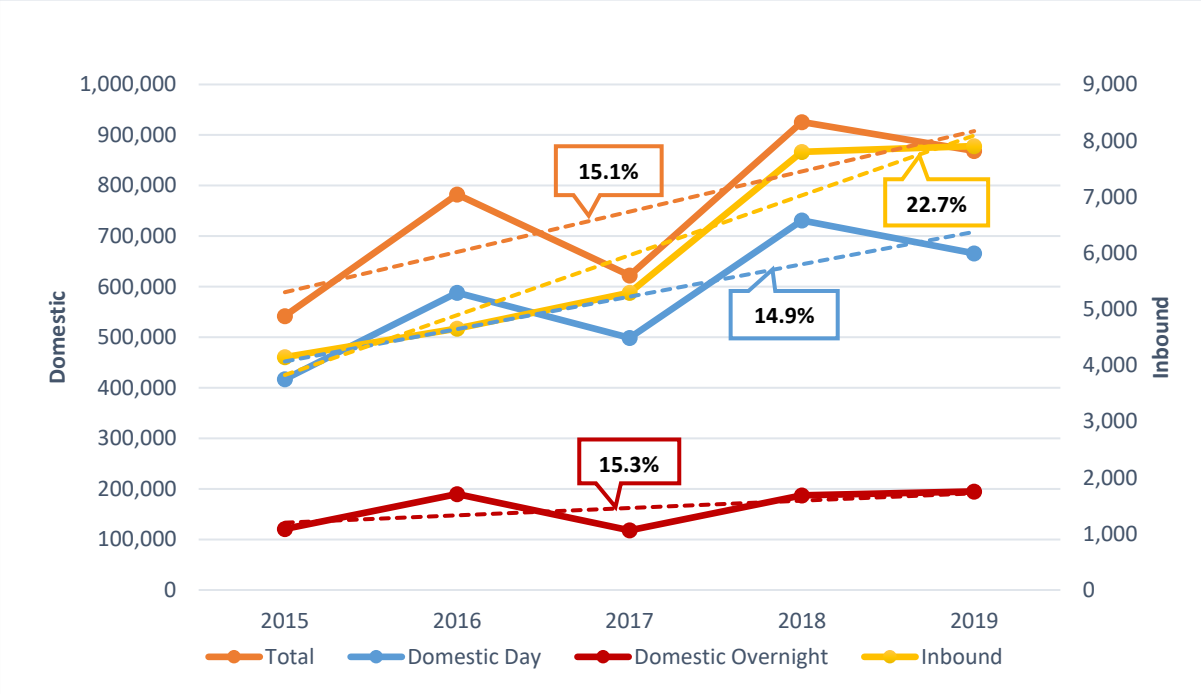
**Visitations**

The total visitation to Bribie Island increased significantly from 542,000 in 2015 to nearly 869,000 in 2019.

The domestic daytrip and overnight visitations followed similar growth patterns

The inbound visitations observed the strongest growth with a 5-year average annual growth rate of 22.7% between 2015 and 2019.

Figure J: Visitation to Bribie Island and Average Growth Rate

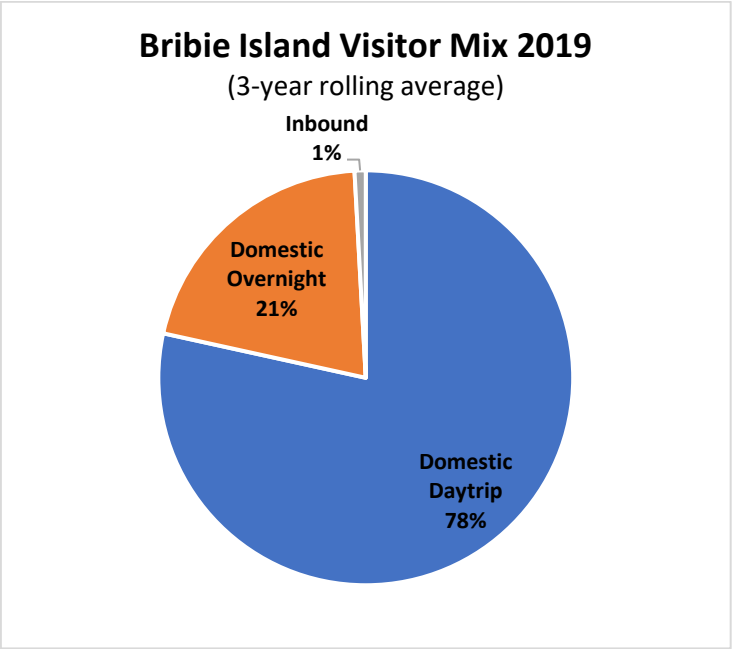



**Visitor Mix**

In 2019[18], over two thirds of visitors to Bribie Island were domestic daytrip visitors. Domestic overnight visitors accounted for 21% of total visitations, while the inbound visitors only accounted for 1%.

[18] Data calculated on a 3-year rolling average to improve statistical reliability.

Figure K: Bribie Island Visitor Mix



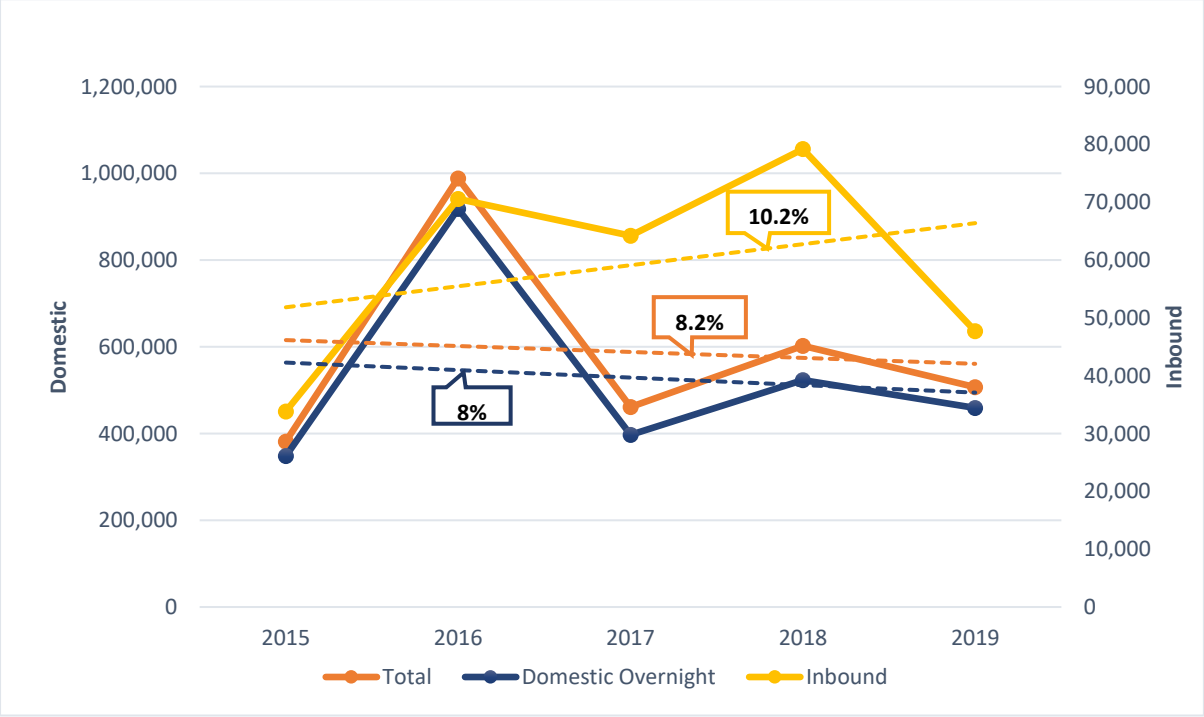

**Visitor Nights**

The total visitor nights to Bribie Island experienced significant fluctuations but slightly increased in general from 2015 to 2019.

The domestic nights followed the same patterns with the total visitor nights from 2015 to 2019.

The inbound visitor nights also observed significant fluctuations yet experienced a significant increase over time.

Figure L: Visitor Nights to Bribie Island and Average Growth Rate

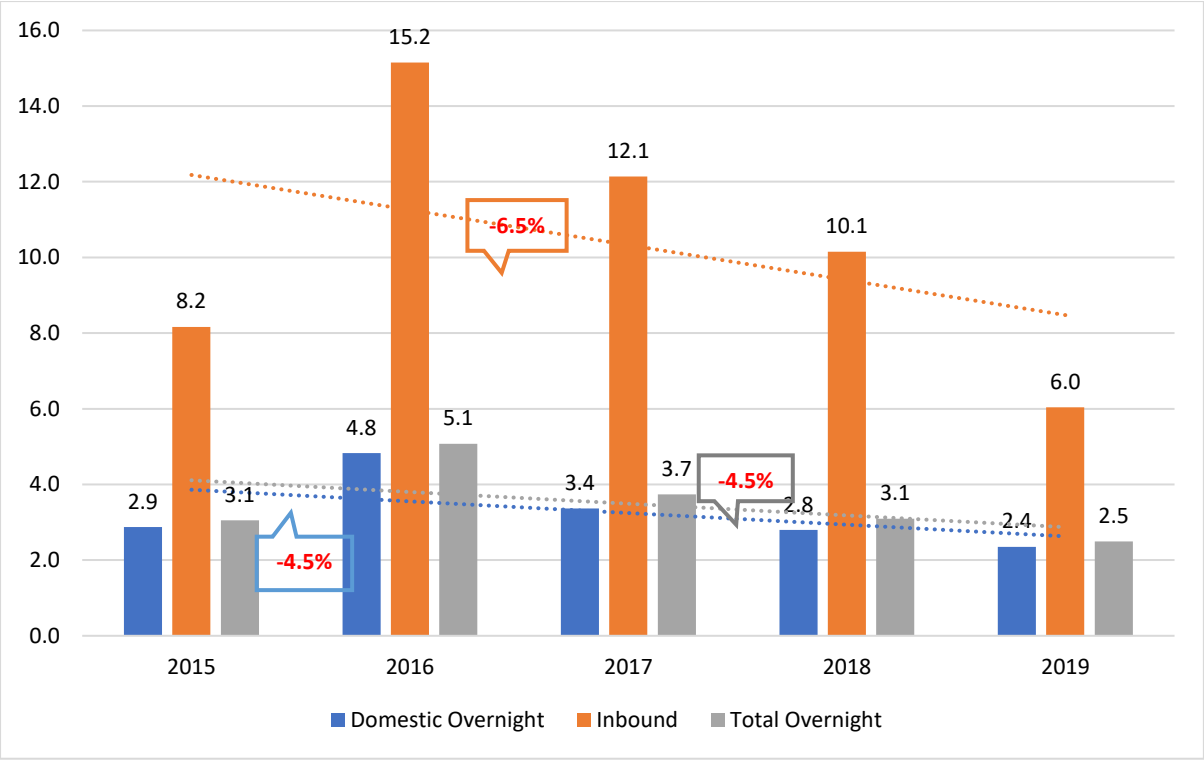


**Average Length of Stay (ALOS)**

Bribie Island saw a slight decrease in the overnight segment's average length of stay. The domestic overnight segment experienced similar patterns.

The ALOS of the inbound segment increased from 8.2 in 2015 to 15.2 days in 2016, then decreased significantly to 6 days in 2019.

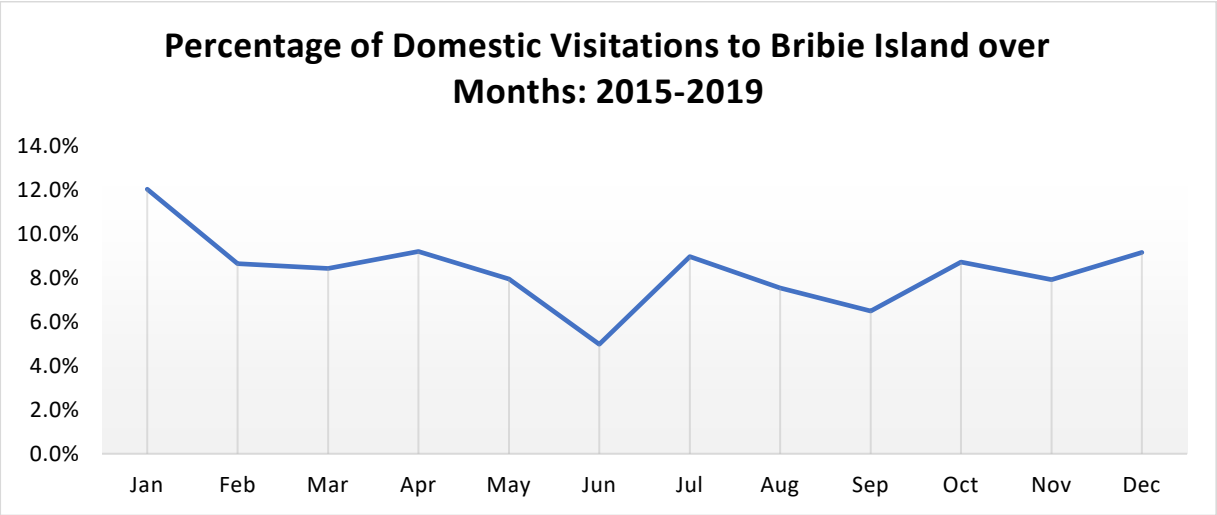
Figure M: Average Visitor Length of Stay on Bribie Island



**Seasonality**[19]

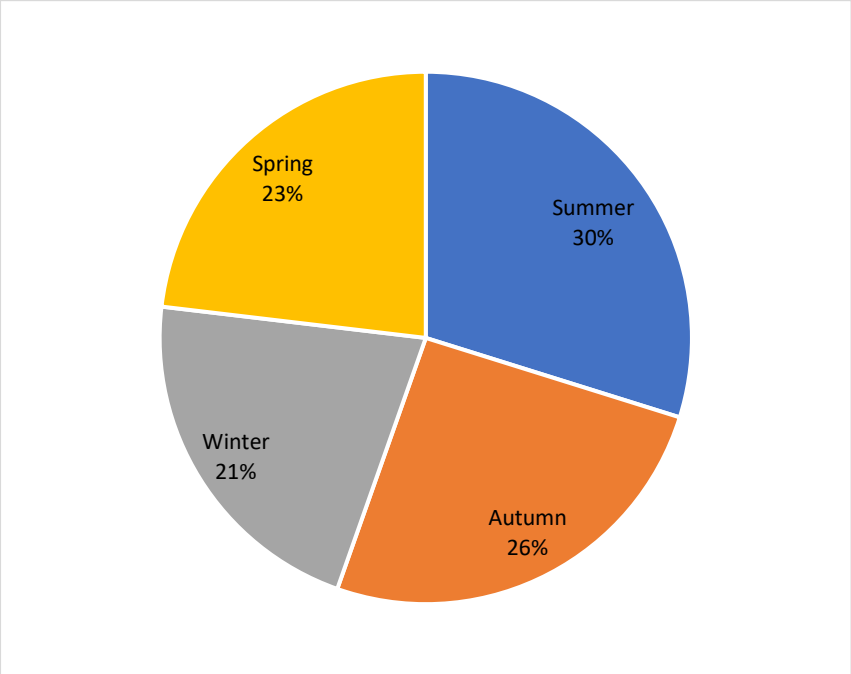
Domestic visitations to Bribie Island in the period of 2015-2019 were the highest in January, and the lowest in June.

Figure N: Seasonal Visitation to Bribie Island




Between 2015 and 2019, domestic visitors tended to visit Bribie Island in Summer and Autumn, followed by Spring.

Figure O: Quarterly Seasonal Visitation on Bribie Island 2105-19




[19] The sum of monthly/seasonal visitations was calculated across a 5-year period (2015-2019) due to insufficient sample size collected in each year.

**Bribie Island Visitor Profiles – Pre-COVID (2019)**

**Domestic Visitor Segment**

**40.1%** of visitors were aged **50 and above,** followed by **34.1%** of visitors aged **35-49** and **20.5%** of visitors aged **20-34**

Most of visitors **(66.6%)** were **holiday makers**, followed by **28.8%** of **VRF visitors**

**33.3%** of visitors were **adult couples,** followed by **friends or relatives travelling together (26%)** and **solo travellers (21.2%)**

More than half of visitors were **male (51.7%)**

**95.3%** of visitors were from Queensland with **77.9%** from **Brisbane**, and **17.4%** from **the regional QLD**. **1.9%** of visitors were from **the regional NSW**

**Private accommodation (65.7%)** was the most popular accommodation option of domestic overnight visitors to Bribie Island

**Self-drive (95.4%)** was the most popular transport option for domestic visitors in Bribie Island

**International Visitor Segment**

More than half **(62.3%)** of visitors were aged **50 and above,** followed by **18.9%** of visitors aged **20-34** and **17.1%** of visitors aged **35-49**

More than half of visitors (**54%)** were **VFR visitors**, followed by **42.8%** of **holiday makers**

The most popular travel groups visiting Bribie Island were **solo travellers (46.1%),** followed by **adult couples (37.4%)**

**80.2%** of visitors had their **return visit** to Australia

Top 3 sourced markets were **New Zealand (40.7%), UK (24.5%),** and **USA (6.9%)**

More than half of visitors were **female (58.7%)**

**Private accommodation (64.6%)** was the most popular accommodation option for international visitors to Bribie Island

**Self-drive (72%)** was the most popular transport option for international visitors to Bribie Island, followed by **aircraft (14.7%)** and **other transport (13.3%)**

**Bribie Island Visitor Profiles – COVID Period (2020-2021)**

**Domestic Visitor Segment**[20]

**45.8%** of visitors were aged **50 and above,** followed by **33%** of visitors aged **35-49** and **16.8%** of visitors aged **20-34**

Most of visitors **(61.8%)** were **holiday makers**, followed by **28.7%** of **VRF visitors**

**30.4%** of visitors were **family group – parents & children,** followed by **adult couples (24%)** and **solo travellers (23%)**

More than half of visitors were **male (54.9%)**

**97.3%** of visitors were from Queensland with **79%** from **Brisbane**, and **18.3%** from **the regional QLD**. **1.7%** of visitors were from **the regional NSW**

**Private accommodation (58.3%)** was the most popular accommodation option of domestic overnight visitors to Bribie Island

**Self-drive (96.2%)** was the most popular transport option for domestic visitors in Bribie Island

Compared to pre-COVID years, the COVID years observed a slightly higher proportion of senior domestic visitors (aged 50 and above) to the Bribie Island and a drop in the number of young travelers. While before COVID, the most popular group of travelers were adult couples, the COVID years welcomed more family group (parents and children) to the region, which become the most popular travel group. Friends or relatives travelling together however did not make the top three travel group during the two COVID years.

While private accommodation has still been the most popular choice for domestic visitors to the Bribie during the pandemic, its proportion has been dropping leading to a higher proportion of visitors choosing commercial accommodation (from 34% pre-COVID to 40.3% in the two COVID years) during their visit to the Bribie Island.

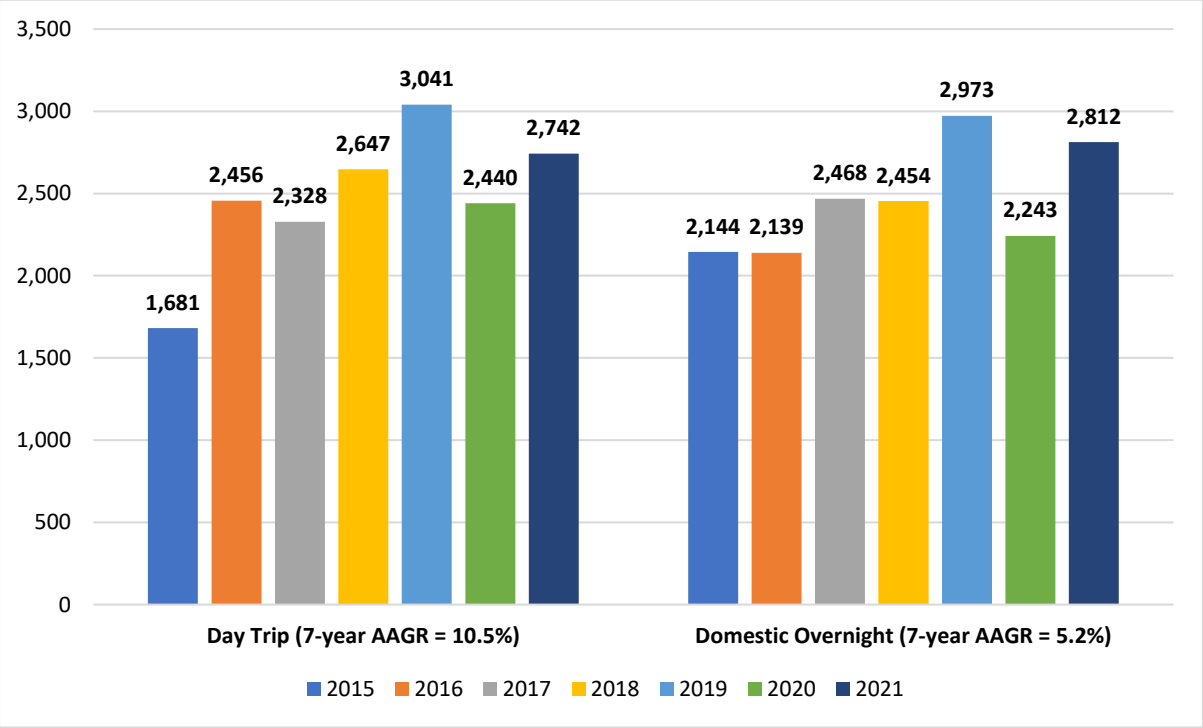
[20] Visitor profile was created using 2-year average from 2020 to 2021.

**Seven-Year Trend in Participation in Queensland National Parks**

From 2015 to 2021, day trip participations in Queensland national parks observed a signification fluctuation compared to the domestic overnight segment. However, the day trip segment experienced a much stronger increase in national park visitation, with a 7-year Annual Average Growth Rate AAGR of 10.5%compared to the domestic overnight segment as a whole (7-year AAGR = 5.2%).

2019 experienced the highest participation level in national parks for both segments in Queensland. While 2020 was hit hard by several waves of the pandemic (when the day trip segment observed a higher level of participation than the domestic overnight), both segments have been experiencing a rapid recovery in 2021 onwards. Specifically, domestic overnight participation[21] in national parks in Queensland observed a strong recovery, nearly reaching the peak of the pre-COVID participation level in 2019.

Figure P: Visitor Participation in Queensland National Parks(000's)/ Average Growth Rate




[21] Visitors who stayed in a destination overnight, and participated in a visit to a national park as part of their trip

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