



**K'gari (Fraser Island)
Sustainable Visitor Capacity and Management Study**

Recommendations

November 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. Purpose of this report

This report provides a summary of analysis and recommendations for the K'gari (Fraser Island) Sustainable Visitor Capacity and Management Study (SVCM).

The accompanying **Technical Appendices** document contains a consolidated summary of detailed research conducted during the study including consultation with key stakeholders, and reports on community, permit holder and business & tourism surveys.

1.1. Study Requirements

The aim of the K'gari SVCM study is to assess current site profiles, demand, impacts, and inform future management decisions and tourism/visitor strategies and demonstrate an achievable and sustainable outcome for the area.

The SVCM study considers the current visitor use and condition of K'gari, as well as future aspirations of the Butchulla people, community, and key stakeholders. Recommendations are provided as options for Queensland Government consideration to address current management challenges, including:

- Adjusting uses at key visitor sites; and
- Infrastructure and management actions that could assist in achieving a more sustainable and enjoyable visitor experience, balanced with the need to maintain the area's natural and cultural values.

Key project components include:

- Assessment of sites against contemporary protected area and recreation area management practices.
- Analysis of existing data, reports, management plans and other information provided by the Department of Environment and Science (DES) on each of the sites.
- Engagement with the Butchulla peoples, community and key stakeholders.
- Site visits to assess the situation at key visitor nodes.
- Determination of carrying capacities for each site (where possible given data constraints) and modelling of the pattern and level of usage.
- Provision of recommendations to implement the identified capacities.
- Provision of recommendations on incorporating adaptive management principles, including monitoring, and reviewing timeframes and thresholds for change.
- Review of visitor behaviours and current compliance arrangements for both commercial and non-commercial visitors, resulting in recommendations about options for improving enforcement of visitor behaviour and capacities.

1.2 Project Methodology

Key stages in the methodology used to undertake the project are as follows:

| I. Site Assessment/Fieldwork and Data Analysis | |
|--|--|
| Best practice & policy review | <ul style="list-style-type: none"> Review of literature and international best practice on tourism carrying capacity to identify practices and techniques employed in similar environments. |
| Review of existing carrying capacity methodology | <ul style="list-style-type: none"> Consideration and review of DES current datasets carrying capacity methodology against contemporary practice. |
| Review of existing data | <ul style="list-style-type: none"> A comprehensive review of the existing data, to understand visitor flows, geophysical and ecological characteristics, and tourism impact (volume and value). |
| Identification of data/input gaps | <ul style="list-style-type: none"> Identification of any data gaps which are essential to identify carrying capacities and inform management decisions. |
| Review of management, enforcement, and decision-making structures in relation to the sites | <ul style="list-style-type: none"> A review of the governance structures in which the destinations are managed. |
| Site reviews | <p>A program of site reviews facilitated by QPWS Rangers to review geophysical and biological attributes, constraints and opportunities that exist as well as to review and understand existing infrastructure and visitor services that support the experiences. The site reviews helped:</p> <ul style="list-style-type: none"> Identify sites' unique environmental and cultural characteristics. Define the desired setting to maintain the visitor experience, taking visitor behaviour into account. Assess any visitor impacts on site condition. Identify any constraints on visitor use of the site (such as car parking capacity). |
| Helicopter perspective on the destination, balanced with site-specific reviews | <p>To best address carrying capacity and sustainable visitor management issues, a balance of site-specific and area-wide perspectives has been taken. Issues such as entry points, area-wide policies, compliance, safety, traffic movements have significant area-wide aspects, as well as the site-specific issues at visitor hotspots. Individual sites reviewed were:</p> <ul style="list-style-type: none"> Lake McKenzie (Boorangoora) Lake Wabby Champagne Pools Maheno Eli Creek Indian Head Central Station Eastern Beach |

| | |
|--|---|
| | <ul style="list-style-type: none"> • Waddy Point • Western Beach (e.g.; Wathumba, Moon Point) |
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II. Stakeholder Engagement

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| <p>An extensive program of consultation with the Butchulla people and identified key stakeholders – Commercial tour operators, island residents/park users, Peak conservation bodies, Local Councils, Local Members, Tourism Industry, World Heritage Committee, Research institutions, Queensland Government – police, ambulance, QFES, Queensland Parks and Wildlife Service and Partnerships.</p> | <p>Consultation was conducted via:</p> <ul style="list-style-type: none"> • Workshop meetings with Butchulla peoples (Butchulla Aboriginal Corporation, Butchulla Native Title Aboriginal Corporation). • K’gari World Heritage Advisory Committee • One to one interviews with key stakeholders including local members of Parliament, K’gari World Heritage Advisory Committee, Fraser Coast Regional Council, Fraser Coast, Tourism and Events, tourism businesses operating on K’gari, Queensland Police Service, and conservation organisations. • DES departments and teams including Coastal and Islands Region, Permissions Management and Ecotourism Development, World Heritage Team, On-Park Visitor Experience, Parks and Forest Policy Unit, Compliance, Great Sandy National Park, and Communications and Engagement Unit. • Distribution of an e-survey to tourism and other businesses including commercial tourism operators/permit holders¹ (alongside individual interviews with key businesses). • Distribution of an e-survey to vehicle/camping permit holders for K’gari over the previous two-year period. • Distribution of an e-survey to the local community – using social media and existing community networks. |
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III. Analysis

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| <p>Weighing up economic and visitor benefits and environmental and community issues makes determination of a site or destination’s carrying capacity a complex issue. It is probable that different thresholds will apply to different sites and vary over time given changing market circumstances. A one-size-fits-all approach for assessing carrying capacity</p> | <ul style="list-style-type: none"> • Drivers, Pressures, State, Impact, Response (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: <ul style="list-style-type: none"> • 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. |
|---|--|

¹ From 19th November to 3rd December 2021, surveys were distributed to community, permit holder and business stakeholders. The surveys were instigated to fill gaps in evidence required to develop well-informed recommendations on carrying capacities and visitor management options. The surveys covered overall sentiment towards K’gari, as well as perspectives on identified sites.

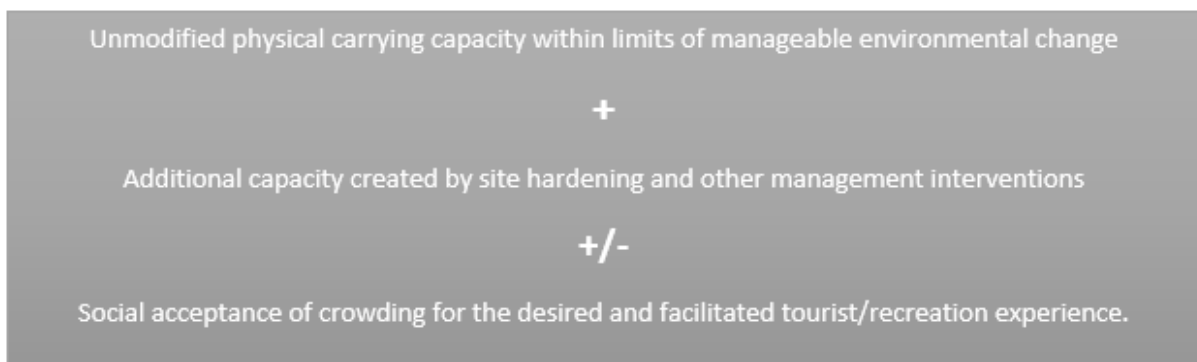
| | |
|--|---|
| <p>of tourist destinations is unlikely to be feasible; therefore, a framework or model needs sufficient flexibility to account for individual site circumstances. As such a framework built around DPSIR (drivers, pressures, state, impact, and response model of intervention) components has been used.</p> | <ul style="list-style-type: none"> • Impacts: e.g., visitor experience, ill public health, habitat fragmentation, economic crisis, environmental damage, biodiversity loss. • Responses: e.g., policy, regulations. |
|--|---|

| IV. Reporting | |
|---------------|--|
| | <ul style="list-style-type: none"> • Key research/study findings and recommendations • Technical appendices report • Final report |

1.3 Concept of Carrying Capacity

Discussion on the growth limits and carrying capacity of tourism destinations is not new. Carrying capacity has been at the heart of sustainable tourism management and aims to provide “time/space-specific answers” at individual sites.

There are many definitions of this concept, the most prominent of which in a tourism context is from the United Nations World Tourism Organisation (UNWTO) which defines carrying capacity as “*the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic and socio-cultural environment and an unacceptable decrease in the quality of visitors’ satisfaction.*” In recent times, the concept of over-tourism and its triggers/measures has become intertwined with carrying capacity.



However, the reality is that calculation of a “single carrying capacity number” is often not feasible for reasons such as inability to factor in future management action, quality/limits on data inputs and differences in thresholds established by tourists and residents, and ecological resilience for individual sites. The concept of carrying capacity can still be used to identify critical impact thresholds, and for considering management changes.

By defining a carrying capacity, managers have a benchmark for planning use against which monitoring of visitor numbers and ecological change can be assessed to inform adaptive management.

1.4 The Need for Decisive Action on Sustainable Management Solutions

Sustainable management solutions on K’gari are required to:

- Respond to immediate peak management pressures; and
- Respond to inevitable longer term increased visitor pressures – driven in part by domestic/international recreational and leisure trends and Southeast Queensland population growth.

1.5 The need for a destination management approach

It is recognised that visitation patterns to K’gari as a whole are complex. The island’s mix of residential areas, National Park, Marine Park, and World Heritage Area and other tenures mean visitors are travelling for a range of purposes. Considerations include:

- Management priorities of the Butchulla people.
- Protecting and enhancing the values that led to National Park designation and World Heritage listing.
- Enhancing the visitor experience. At present, visitors enjoy a range of recreational experiences including enjoyment of nature, camping, socialising, fishing, 4WD use, and surfing.

- Local communities who live on/ near to the island who have been enjoying it as a place to visit for generations.
- Passionate conservation organisations.
- Amenity of K’gari residents.
- The business interests of Commercial Tourism Operators and ensuring that tourism’s economic potential is maximised – maximising K’gari’s status as an iconic Queensland and Australian destination.
- Balancing competing user demands of user groups with the values and desired state and values for the island.
- Management action will be necessary to mitigate the potential of unchecked growth, within the context of understanding and managing cumulative impact and individual site management.

1.6 Management Context

Management context and strategic intent is provided in the Great Sandy Region Management Plan, and in the application of the Values-Based Park Management Framework (VBMF).

K’gari is managed to the Exceptional Level of Service for visitor management due to the significant number of visitors; its status as major tourism destination; and the need to conserve the 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. The pressure of increasing visitor demand to K’gari by ongoing visitor demand, underpinned by continued population growth in Southeast Queensland is understood.

The Values-Based Management Framework (VBMF) is an adaptive management cycle that incorporates planning, prioritising, doing, monitoring, evaluating, and reporting into all areas of QPWS's park planning and management accountabilities.

Adaptive management is fundamental to the Values-Based Management Framework (VBMF). Monitoring the condition of key values, through time, is essential for determining the effectiveness of on-ground management. The condition of key values is assessed through the Health Checks program. Adaptive management enables QPWS to be more flexible and proactive and improve management effectiveness over time. Forests and reserves are kept healthy by:

- Managing and protecting the things that matter most—our key values.
- Strategically directing management effort towards priorities.
- Delivering custodial obligations as a land manager.
- Setting a level of service for all parks, forests, and reserves.
- Building systems that support decision making for adaptive management.
- Building support for what we do through accountability and transparency.
- Striving for improvement through structured learning and doing.

Levels of Service are applied to eight park management elements for each park:

- Fire management.
- Pest management.
- Natural values management.
- Historic cultural heritage management.
- Community and third-party interests management.
- Visitor management.
- Field management capability.
- Operational planning and management support.

2. Demand Pressures

2.1. Sources of Visitor Demand and Peak Pressures

Analysis of available data shows visitor demand in the following forms:

- While overall demand (camping and vehicle access permit (VAP) sales) over the past 5-year period up to 2021 has been showing steady growth², growth accelerated strongly during the first half of 2022, reaching record levels. Since the beginning of the COVID-19 pandemic, the destination's visitation pattern has changed significantly, with interstate and international markets greatly reduced.
- As a context for demand on the island, visitation growth in the overall Fraser Coast region has remained relatively flat in recent years. When only holiday visitors are considered, K'gari accounts for 40% of the tourism region's total holiday trips.
- Demand is strongly seasonal (the Dec-Jan and Easter holiday periods and, tailor fishing season (September peak)).
- Demand stems from predominantly overnight visitors, and to a lesser extent, day visitors via bus tours from nearby destinations in Southeast Queensland.
- Motivations for visitors vary, with 4WD/scenic drive being the most popular activity noted in a survey conducted for this project, followed by camping and immersion/quiet enjoyment of nature.

When assessing short and medium term future demand, recovery from COVID-19 needs to be considered:

- The speed of international markets returning (and return of demand for tag along and other experiences) is unclear. With economic uncertainty, full international recovery can now reasonably be expected to be delayed into 2024. Figure 1 shows two primary growth scenarios through to 2032, prepared as part of the Towards Tourism 2032 document by the Queensland Government³. The graph shows low and high growth scenarios which are proposed as aspirational growth goals for Queensland's visitor economy. Under both scenarios, growth in visitation and expenditure is expected. Growth across regions and destinations will vary, but given the increasing demand for nature-based tourism, it can reasonably be expected that the Fraser Coast tourism region and K'Gari would be subject to visitor growth under both scenarios.
- Lower economic confidence/ cost of international travel is likely to mean that domestic demand will remain strong over the next 18 months, with visitation on K'gari continuing to be predominantly from domestic markets. Acceleration of camping permit and VAP sales in 2021 and 2022 indicate that growth in overall visitation numbers will continue.
- Visitor behaviour between domestic and international markets is distinct – during the COVID-19 period, data has shown that domestic visitors are less likely than international visitors to buy paid experiences – there tends to be a greater focus on accommodation, entertainment and food & drink. Independent travel also dominates to a greater extent.

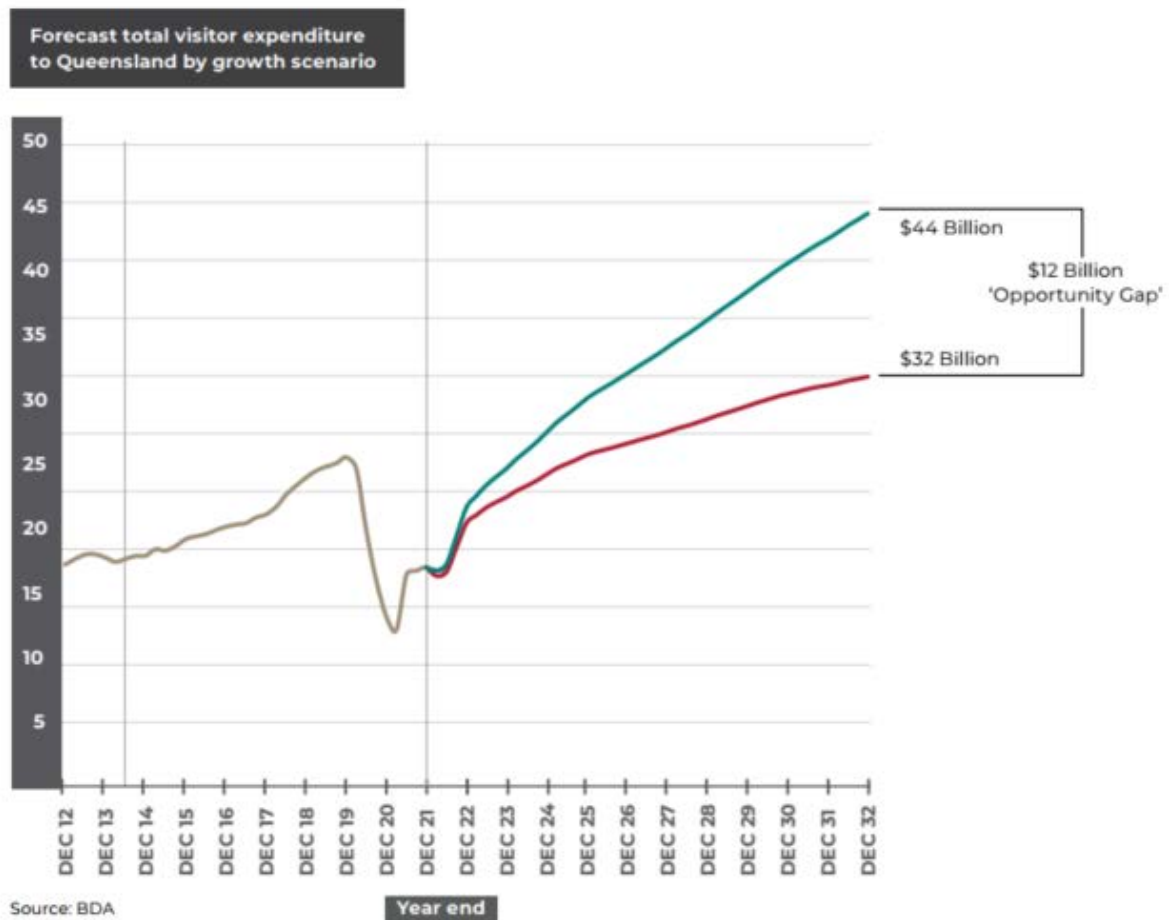
² Vehicle access permit (VAP) purchases (monthly and annual) have risen by 17% (average 4.4%) between 2016 and 2021

³ The red line on the graph show a low growth trajectory and the teal line shows a higher growth scenario

These factors all have a direct influence on how domestic visitors behave when visiting destinations such as K’gari.

- K’gari is a complex environment with some aspects directly managed by Queensland Parks and Wildlife Service (QPWS). There are also other significant components which contribute to movement and visitor pressures that are outside of direct QPWS management control, including residential properties; private holiday lets and Sealink’s tourism operations.

Figure 1: Queensland Tourism Growth Scenarios (extract from Toward Tourism 2032, Queensland Government)



While K’gari is a tourism destination which attracts international and interstate visitors, regional and local markets remain key drivers of trade. This is especially the case given current economic pressures and protracted COVID-19 recovery.

2.1.1 VAP Purchases for K’gari

Vehicle access permit (VAP) purchases (monthly and annual) have risen by 17% (average 4.4% pa) between 2016 and 2021, with monthly peaks above 3,500 (denoted in yellow, figure 2) consistently recorded during the Dec/Jan and Easter Holidays and during the September tailor fishing season (figure 2). Absolute peak demand occurs in September, driven by a combination of the height of the fishing season and visitor demand.

Figure 2: K'gari VAP Purchases 2016 to 2022

| VAP DURATION | YEAR | MONTH | | | | | | | | | | | | TOTAL |
|--------------|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | |
| Monthly | 2016 | 3,939 | 1,757 | 4,012 | 3,596 | 1,793 | 1,774 | 2,673 | 4,359 | 6,699 | 4,589 | 2,888 | 5,706 | 43,785 |
| Annual | | 52 | 51 | 66 | 62 | 30 | 33 | 42 | 48 | 68 | 58 | 64 | 82 | 656 |
| | | 3,991 | 1,808 | 4,078 | 3,658 | 1,823 | 1,807 | 2,715 | 4,407 | 6,767 | 4,647 | 2,952 | 5,788 | 44,441 |
| VAP DURATION | YEAR | MONTH | | | | | | | | | | | | TOTAL |
| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | |
| Monthly | 2017 | 4,148 | 1,853 | 2,247 | 5,157 | 1,898 | 1,992 | 2,954 | 4,419 | 6,932 | 3,883 | 3,014 | 5,641 | 44,138 |
| Annual | | 38 | 37 | 42 | 57 | 32 | 43 | 53 | 37 | 73 | 48 | 54 | 89 | 603 |
| | | 4,186 | 1,890 | 2,289 | 5,214 | 1,930 | 2,035 | 3,007 | 4,456 | 7,005 | 3,931 | 3,068 | 5,730 | 44,741 |
| VAP DURATION | YEAR | MONTH | | | | | | | | | | | | TOTAL |
| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | |
| Monthly | 2018 | 3,839 | 1,821 | 3,475 | 3,486 | 2,402 | 1,958 | 3,285 | 4,611 | 6,426 | 4,439 | 3,489 | 5,488 | 44,719 |
| Annual | | 53 | 28 | 60 | 54 | 33 | 36 | 45 | 59 | 79 | 40 | 54 | 74 | 615 |
| | | 3,892 | 1,849 | 3,535 | 3,540 | 2,435 | 1,994 | 3,330 | 4,670 | 6,505 | 4,479 | 3,543 | 5,562 | 45,334 |
| VAP DURATION | YEAR | MONTH | | | | | | | | | | | | TOTAL |
| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | |
| Monthly | 2019 | 4,358 | 1,756 | 2,688 | 5,494 | 2,702 | 1,993 | 3,166 | 4,563 | 6,040 | 4,870 | 3,354 | 5,524 | 46,508 |
| Annual | | 59 | 46 | 36 | 43 | 32 | 30 | 24 | 55 | 71 | 53 | 40 | 77 | 566 |
| | | 4,417 | 1,802 | 2,724 | 5,537 | 2,734 | 2,023 | 3,190 | 4,618 | 6,111 | 4,923 | 3,394 | 5,601 | 47,074 |
| VAP DURATION | YEAR | MONTH | | | | | | | | | | | | TOTAL |
| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | |
| Monthly | 2020 | 3,920 | 1,675 | 1,581 | 69 | 70 | 2,188 | 3,828 | 6,037 | 6,239 | 6,125 | 3,650 | 3,403 | 38,785 |
| Annual | | 35 | 35 | 33 | 5 | 45 | 92 | 81 | 67 | 96 | 72 | 69 | 60 | 690 |
| | | 3,955 | 1,710 | 1,614 | 74 | 115 | 2,280 | 3,909 | 6,104 | 6,335 | 6,197 | 3,719 | 3,463 | 39,475 |
| VAP DURATION | YEAR | MONTH | | | | | | | | | | | | TOTAL |
| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | |
| Monthly | 2021 | 4,288 | 2,500 | 3,383 | 5,394 | 2,930 | 2,865 | 3,392 | 4,121 | 6,637 | 6,024 | 3,879 | 6,068 | 51,481 |
| Annual | | 74 | 35 | 53 | 35 | 45 | 68 | 83 | 67 | 103 | 97 | 61 | 93 | 814 |
| | | 4,362 | 2,535 | 3,436 | 5,429 | 2,975 | 2,933 | 3,475 | 4,188 | 6,740 | 6,121 | 3,940 | 6,161 | 52,295 |
| VAP DURATION | YEAR | MONTH | | | | | | | | | | | | TOTAL |
| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | |
| Monthly | 2022 | 5,215 | 2,863 | 3,620 | 6,730 | 2,641 | 2,960 | | | | | | | 24,029 |
| Annual | | 80 | 48 | 45 | 76 | 69 | 103 | | | | | | | 421 |
| | | 5,295 | 2,911 | 3,665 | 6,806 | 2,710 | 3,063 | | | | | | | 24,450 |

Figure 3: K'gari VAP Purchase Summary 2016 to 2021

| VAPs | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 (first 6 months of the year) |
|---------------|--------|--------|--------|--------|--------|--------|--------------------------------------|
| K'gari | 44,441 | 44,471 | 45,334 | 47,074 | 39,475 | 52,295 | 24,450 |

Significant growth in VAP sales has taken place during the COVID-19 recovery years in 2021 and 2022 (6 months of the year to date). 2021 was the first year to record 3 months with 6,000+ VAP sales.

The first 6 months of 2022 have also seen record levels of VAP sales. As noted in figure 4, when only the first 6 months of the year are considered, there has been a 42% growth in VAP sales between 2016 and 2022 (all VAPs), representing an average annual growth of 8.5%. If the same growth is sustained during the whole of 2022, there will be an estimated 59,000 VAP sales for the year – the highest on record.

Figure 4: K'gari VAP Sales 2016 to 2022 (first 6 months of the year)

| QPWS ESTATE | VAP DURATION | YEAR | MONTH | | | | | | TOTAL |
|--|--------------|------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| | | | JAN | FEB | MAR | APR | MAY | JUN | |
| K'gari (Fraser Island) Vehicle Access Permit | Monthly | 2016 | 3,939 | 1,757 | 4,012 | 3,596 | 1,793 | 1,774 | 16,871 |
| K'gari (Fraser Island) Vehicle Access Permit | Annual | | 52 | 51 | 66 | 62 | 30 | 33 | 294 |
| TOTAL | | | 3,991 | 1,808 | 4,078 | 3,658 | 1,823 | 1,807 | 17,165 |
| QPWS ESTATE | VAP DURATION | YEAR | MONTH | | | | | | TOTAL |
| | | | JAN | FEB | MAR | APR | MAY | JUN | |
| K'gari (Fraser Island) Vehicle Access Permit | Monthly | 2017 | 4,148 | 1,853 | 2,247 | 5,157 | 1,898 | 1,992 | 17,295 |
| K'gari (Fraser Island) Vehicle Access Permit | Annual | | 38 | 37 | 42 | 57 | 32 | 43 | 249 |
| TOTAL | | | 4,186 | 1,890 | 2,289 | 5,214 | 1,930 | 2,035 | 17,544 |
| QPWS ESTATE | VAP DURATION | YEAR | MONTH | | | | | | TOTAL |
| | | | JAN | FEB | MAR | APR | MAY | JUN | |
| K'gari (Fraser Island) Vehicle Access Permit | Monthly | 2018 | 3,839 | 1,821 | 3,475 | 3,486 | 2,402 | 1,958 | 16,981 |
| K'gari (Fraser Island) Vehicle Access Permit | Annual | | 53 | 28 | 60 | 54 | 33 | 36 | 264 |
| TOTAL | | | 3,892 | 1,849 | 3,535 | 3,540 | 2,435 | 1,994 | 17,245 |
| QPWS ESTATE | VAP DURATION | YEAR | MONTH | | | | | | TOTAL |
| | | | JAN | FEB | MAR | APR | MAY | JUN | |
| K'gari (Fraser Island) Vehicle Access Permit | Monthly | 2019 | 4,358 | 1,756 | 2,688 | 5,494 | 2,702 | 1,993 | 18,991 |
| K'gari (Fraser Island) Vehicle Access Permit | Annual | | 59 | 46 | 36 | 43 | 32 | 30 | 246 |
| TOTAL | | | 4,417 | 1,802 | 2,724 | 5,537 | 2,734 | 2,023 | 19,237 |
| QPWS ESTATE | VAP DURATION | YEAR | MONTH | | | | | | TOTAL |
| | | | JAN | FEB | MAR | APR | MAY | JUN | |
| K'gari (Fraser Island) Vehicle Access Permit | Monthly | 2020 | 3,920 | 1,675 | 1,581 | 69 | 70 | 2,188 | 9,503 |
| K'gari (Fraser Island) Vehicle Access Permit | Annual | | 35 | 35 | 33 | 5 | 45 | 92 | 245 |
| TOTAL | | | 3,955 | 1,710 | 1,614 | 74 | 115 | 2,280 | 9,748 |
| QPWS ESTATE | VAP DURATION | YEAR | MONTH | | | | | | TOTAL |
| | | | JAN | FEB | MAR | APR | MAY | JUN | |
| K'gari (Fraser Island) Vehicle Access Permit | Monthly | 2021 | 4,288 | 2,500 | 3,383 | 5,394 | 2,930 | 2,865 | 21,360 |
| K'gari (Fraser Island) Vehicle Access Permit | Annual | | 74 | 35 | 53 | 35 | 45 | 68 | 310 |
| TOTAL | | | 4,362 | 2,535 | 3,436 | 5,429 | 2,975 | 2,933 | 21,670 |
| QPWS ESTATE | VAP DURATION | YEAR | MONTH | | | | | | TOTAL |
| | | | JAN | FEB | MAR | APR | MAY | JUN | |
| K'gari (Fraser Island) Vehicle Access Permit | Monthly | 2022 | 5,215 | 2,863 | 3,620 | 6,730 | 2,641 | 2,960 | 24,029 |
| K'gari (Fraser Island) Vehicle Access Permit | Annual | | 80 | 48 | 45 | 76 | 69 | 103 | 421 |
| TOTAL | | | 5,295 | 2,911 | 3,665 | 6,806 | 2,710 | 3,063 | 24,450 |

Growth in demand during 2021 and 2022 can in large part be attributed to COVID-19 and its restrictions on travelling interstate and overseas, which has seen Queensland residents not only holidaying at home, but keen to get out into nature and beaches once lockdown/s were lifted. This situation is echoed in many national parks across Australia where similar visitation patterns are being experienced, and management responses such as imposing vehicle limits or instigating temporary closures are being put in place.

Until international and domestic travel is normalised, continued growth following these trends can be expected, with peaks continuing to occur during Christmas and Easter holiday periods.

Figures 5 and 6 show consistent growth in visitor participation in visiting national parks/ State parks as an activity⁴:

- For day visitors there was a 67% growth in participation between 2015 and 2019 at Queensland and Australia-wide levels.

⁴ Tourism Research Australia 2015-21. Please note that this data set is based on visitor definitions, which exclude travel by residents within their LGA

- Visiting a national/State park rose as a share of all activities by day visitors from 4.7% to 8% in Queensland over the 2015 – 2021 period.
- For domestic overnight visitors there was a 40% growth in participation between 2015 and 2019 for Queensland as a whole.
- Visiting a national/State park rose as a share of all activities by domestic overnight visitors from 9.8% to 13.8% in Queensland over the 2015 – 2021 period.

Local population growth is also a factor to consider. Fraser Coast LGA population is forecast to grow by 26% by 2041, with a modest 3% growth estimated for K'gari by 2041.

Figure 5: Day Visitor Participation in Visiting a National Park/State Park^[1]

| | | YE Dec 2015 | 2015 Share of all visitor activities | YE Dec 2016 | YE Dec 2017 | YE Dec 2018 | YE Dec 2019 | YE Dec 2020 | YE Dec 2021 | 2021 Share of all visitor activities | 2015-19 Growth |
|------------|------------------------------------|-------------|--------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------------------------|----------------|
| Queensland | Visit national parks / state parks | 1,892,000 | 4.7% | 2,519,000 | 2,349,000 | 2,860,000 | 3,168,000 | 2,390,000 | 2,437,000 | 8.0% | 67.4% |
| Australia | Visit national parks / state parks | 9,762,000 | 5.4% | 11,317,000 | 11,428,000 | 13,628,000 | 16,321,000 | 10,133,000 | 10,920,000 | 8.7% | 67.2% |

Figure 6: Domestic Overnight Participation in Visiting a National Park/State Park^[2]

| | | YE Dec 2015 | 2015 Share of all visitor activities | YE Dec 2016 | YE Dec 2017 | YE Dec 2018 | YE Dec 2019 | YE Dec 2020 | YE Dec 2021 | 2021 Share of all visitor activities | 2015-19 Growth |
|------------|------------------------------------|-------------|--------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------------------------|----------------|
| Queensland | Visit national parks / state parks | 1,997,000 | 9.8% | 2,124,000 | 2,373,000 | 2,527,000 | 2,787,000 | 2,044,000 | 2,484,000 | 13.8% | 39.6% |
| Australia | Visit national parks / state parks | 9,209,000 | 10.5% | 9,628,000 | 11,151,000 | 12,756,000 | 14,173,000 | 9,548,000 | 11,073,000 | 15.1% | 53.9% |

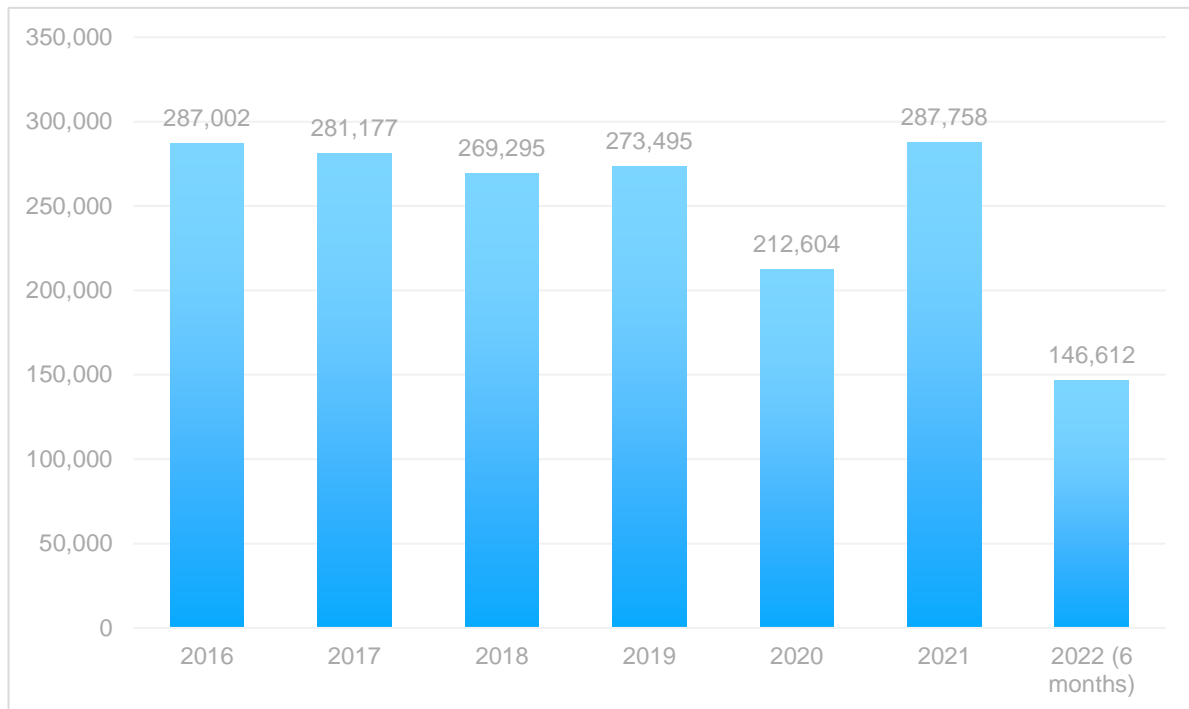
^[1] Source: National Visitor Survey, Tourism Research Australia, 2015-2021

^[2] Source: National Visitor Survey, Tourism Research Australia, 2015-2021

2.1.2 Visitor Accommodation Demand

Performance at campsites managed by QPWS shows modest growth between 2016 and 2021 (a slower growth than VAP sales⁵), albeit with camper nights rebounding strongly to pre COVID-19 levels in 2021.

Figure 7: Camper Nights – all K’gari Campsites⁶



Exceptional growth in camper nights during the first 6 months of 2022 is notable (146, 612) – if this trend was replicated in the latter half of the year (following the 5 year trend of the first six months of annual camper nights), it would equate to an estimated 405,000 camping nights in 2022 – the highest number recorded across the 10-year datasets reviewed in this project. It should also be noted, however, that site capacity practicalities would in all likelihood, limit this number being achieved.

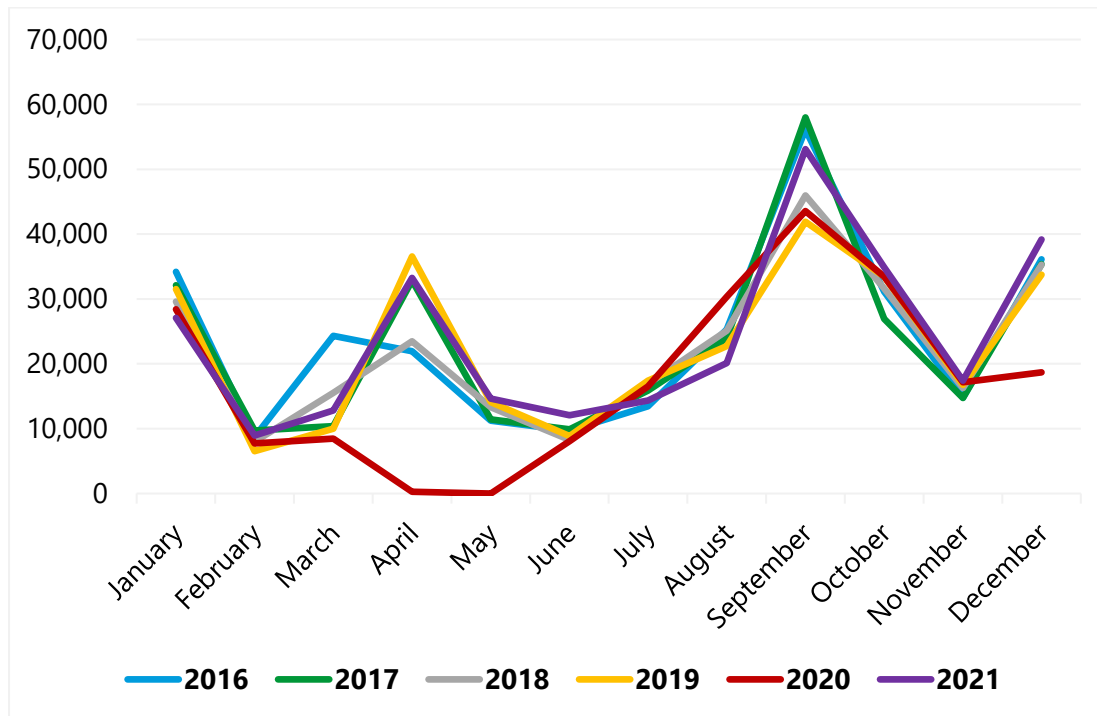
Seasonality and related peaks and troughs in demand are also apparent from reviewing camper nights – figure 8 reaffirms the Dec/Jan and Easter peaks, but with absolute peak demand occurring at the height of tailor fishing season in September.

⁵ A possible explanation is that demand is being taken up other forms of accommodation – private campsites, Airbnb/private rentals etc.

⁶ The total number of camper nights for a specified date range. One Camper Night refers to one adult or child (infants excluded) staying one night.

Includes Fraser Island Recreation Area and Fraser Island Great Walk camp sites.

Figure 8: Seasonality in QPWS Camper Nights Spent on K'gari



While data is not available for Sealink's properties and other private accommodation throughout the island, demand using these types of accommodation is also significant. Anecdotally, performance has been strong, with limited availability for accommodation booking across the island often being the norm.

2.1.3 Changes to Visitation Patterns

There is strong evidence of changing visitation patterns in 2021 and 2022, with greater numbers of free and independent travellers (FIT) compared with those visiting sites with commercial tour operators (CTO)⁷. This is characteristic of a visitor market where international visitors are absent (and lower numbers of interstate visitors):

- Between 2019 and 2021, CTO take up of available capacity at the more popular K'gari (Fraser Island) sites has fallen by approximately 5% to 10% on average.
- Pre-COVID, tagalong tours (TAG)⁸ were recording take up of available capacity in the 60% to 70% range - this has fallen to negligible levels in 2021 and 2022, showing the changing behaviour associated with a visitor market dominated by Queenslanders. Demand for this type of experience has fallen strongly.
- Pre-COVID, tours etc were recording take up of available CTO capacity in the 50% to 60% range, which has fallen to 20%-30% of available capacity range in 2021 (apart from the Eli Creek and Maheno sites).

⁷ Queensland Eco and Sustainable Tourism (QuEST) records from CTOs

⁸ A convoy of four-wheel-drive vehicles, including a lead vehicle which is operated by a tour guide, followed by other 4WD vehicles that are driven by guests.

Anecdotal feedback from businesses indicates strong levels of trading in 2022, therefore this data needs to be treated with a degree of caution, however, the growing proportion of independent travel to sites compared with organised trips (CTOs) is apparent.

2.2 Longer-term management pressures

Visitor Markets

There is a clear trend towards increased demand and visitation over a period of time, however it is important to note that there will undoubtedly be some moderation in domestic demand once international travel for Australians is considered safe and affordable again. A dip in domestic demand could be expected once international travel volumes return. The Queensland Government's recently published 'Towards Tourism 2032' document includes modelling of forecasts – a 'maintaining market share' scenario and a 'higher growth trajectory' scenario - under either scenario it is a reasonable assumption to make that if achieved, visitation to the Fraser Coast region and K'gari would continue to grow from current levels even if performance only maintains the region's current market share.

Based on analysis of Queensland Eco and Sustainable Tourism (QuEST) records, levels of unused CTO capacity have risen significantly between 2019 and 2022. The overall inference from available data is that overall visitor numbers have now recovered to pre-covid levels (camping permits and VAPs), and accelerated past it in 2022, however visitation patterns have changed. There are higher levels of independent travel/less usage of current CTO options, leading to a potential reduction in ability to manage.

In principle, effective partnerships with CTOs provide management control for visitors choosing organised/commercial travel. This relationship can be improved; however, the more significant management challenge remains in the FIT segment where there are fewer management tools currently available to QPWS.

Population Growth

Longer term management requirements will need to be informed by appropriate data, but there is little doubt that SEQ population growth will mean increased demand for recreational space, including at K'gari.

Trends include:

- The increased demand for SUVs and 4WD vehicles shows no sign of slowing down⁹. Sales of 4WDs in Australia show consistent above average growth compared to other vehicle types. Models such as Toyota Hilux, Ford Ranger, Toyota Prado, and Mitsubishi Triton consistently rank high in new car sales in Queensland. Similarly, caravan sales continue to show strong growth (26.7% over the 5 years to 2020).¹⁰
- Strong demand for nature-based tourism and visits to national parks (please refer to figures 5 and 6).

⁹ https://documents.parliament.qld.gov.au/committees/TRC/2021/VehSafetyStdTech/qton-24May2021_AAAA.pdf

¹⁰ <https://caravanstats.com.au/wp-content/uploads/2020/12/2020-Caravan-and-Campervan-Data-Report.pdf>

- As noted in figure 9, regional and local population growth projections are significant - regional recreational and visitor demand from SEQ residents is highly likely to continue to be the dominant driver of usage levels.¹¹

Figure 9: Forecast Local and Regional Population Forecasts

| Area | Population Growth |
|-------------------------------------|---|
| South-East Queensland ¹² | <ul style="list-style-type: none"> • Anticipated growth of an additional 1.9m people between 2017 and 2040 (growth of 54%). |
| Fraser Coast LGA ¹³ | <ul style="list-style-type: none"> • Fraser Coast LGA population is forecast to grow by 26% by 2041, with a modest 3% growth estimated for K'gari by 2041. |

¹¹ Appendix 2, question 2

¹² <https://dsdmipprd.blob.core.windows.net/general/shapingseq.pdf>

¹³ <https://forecast.id.com.au/fraser-coast>

3. Overview of Capacity and Sustainable Visitor Management Issues

3.1 DPSIR Framework

The DPSIR (drivers, pressures, states, impacts, responses) causal framework¹⁴ has been used as the basis for conducting this study. This framework describes the interactions between society and the environment: Human impact on the environment and vice versa because of the interdependence of the components, which has been used to frame this carrying capacity and sustainable visitor management study.

3.2 Drivers and Pressures

Section 2 of this report discusses a range of drivers and resulting pressures which contribute to peak-period capacity challenges – recreation by SEQ residents, population growth and tourism are to the fore. Forecast and trend data indicates that without management intervention, demand will continue to increase, driven by population growth and societal/leisure trends.

Analysis of available data shows that peak management pressures manifest themselves in the form of:

- The **Butchulla peoples**, including Butchulla Aboriginal Corporation (BAC) and Butchulla Native Title Aboriginal Corporation (BNTAC), have significant concerns regarding **peak visitor volume pressures and behaviour**, and recognise the need to strive towards a more appropriate balance to protect what makes K’gari special.
- **Immediate pressures on infrastructure** at key sites and on Eastern Beach have been apparent at peak periods over a sustained period of time – school holidays, long weekends, public holidays and during tailor fishing season. The consensus from available data is that outside peak periods, volume pressures are manageable at most of the island’s key sites.
- **Sustained peak levels** of daily vehicle movements, related directly to clusters of traffic from barge arrivals and tidal patterns.
- **Pressures at popular sites** across the island. In addition to the overall setting of the island, its bucket list sites including Eli Creek, Champagne Pools and Lake McKenzie face particular pressures. These sites consistently rate as the most visited destinations on the island, while Central Station also experiences peak periods related to tour vehicles and the timing of barge arrivals.
- Eastern Beach’s role as the **major highway connector** on the island and main arrival/ departure point at Hook Point is a focal point for vehicle movements.
- **Associated visitor behavioural issues** occur alongside the peak volume pressures including safety issues (campfires, driving), littering, and activities which result in extensions of visitor zones. The COVID-19 period attracted visitors who previously hadn’t visited the island, further exacerbating some behavioural issues.

¹⁴ 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

- **Environmental impacts at bucket list sites and at campsites.** Each site differs but common issues are extension/hardening of sites, littering and bush toileting. Volume and visitor behaviour are contributing factors to environmental impacts at key sites and campsites
- Tidal patterns and clusters of traffic via barge arrivals add to **intensity of use on Eastern Beach** and at bucket-list locations.
- **Community concerns** on impact of peak demand levels.

3.3 Impacts

- Evidence demonstrates there are **capacity and visitor behavioural impacts on popular K’gari locations, especially at peak times.**
- Stress on popular sites and infrastructure, predominantly from **overnight visitors (FIT segment and those visiting sites via commercial tours).**
- There are currently **no accurate means to measure** overall visitor numbers or peak demand at key sites. The recent introduction of an Automatic Number Plate Recognition System at Hook Point, Wanggoollba and Kingfisher Resort for the first time has enabled a more accurate measure on total vehicle movements onto/exiting the island from the key points.
- K’gari is a large island which, as a whole, may be able to absorb higher levels of visitor numbers. However, the **cumulative impact of continuing rises in visitation is likely to lead to increased pressure on the existing key visitor sites** which are overcrowded at peak times already. This is an important issue for consideration, as at present, opportunities for visitor dispersal to new visitor nodes are limited.
- **Natural pinch points**, including Eastern Beach being the focal point for vehicle movements.
- Loss of **social settings**¹⁵ at key sites.
- **Clustering of visitors at hotspots** including Eli Creek, Lake McKenzie and Champagne Pools, exacerbating impact at these locations.
- **Daily peak demand** periods at key sites, related to barge arrivals and tidal patterns.
- **Seasonal peak demand** levels at the Dec/Jan and Easter holiday periods and tailor fishing season.
- The **dichotomy between perception of a World Heritage Area and the optics of visitation related to 4WD vehicles.** Beach driving and associated imagery on K’gari is a signature tourism experience for Queensland, however, long streams of vehicles and clusters of 4WDs parked at popular beach areas can also be at odds with management values and the National Park/World Heritage Area setting.
- Environmental and habitat challenges, the most significant of which in the context of a busy destination are **litter, the impact of bush toileting, and hardening/creep** of areas surrounding campsites, tracks and parking areas.
- Potential **health issues** related to bush toileting at some locations.

¹⁵ social settings as systems consisting of social processes (i.e., transactions between two or more groups of people), resources (i.e., human, economic, physical, temporal), and the organization of resources (i.e., how resources are arranged or allocated).

- Different **stakeholder groups are impacted by high visitation levels** and related visitor behaviour in different ways.
 - The Butchulla peoples (BAC, BNTAC) have concerns about lack of respect and understanding from visitors of the lands on which they are visiting, with particular challenges regarding cultural and environmental significance.
 - Permit holders/ visitors are concerned primarily by diminishing visitor experiences.
 - Communities have a focus on conservation values and peak traffic levels impacting negatively on local amenity.
 - Conservation and environmental stakeholders have concerns regarding a range of issues such as setting and habitat including damage to habitats and impact on flora/ fauna on the beach and inter-tidal zone.

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

- Decreases in visitor experience levels.
 - Loss of amenity for residents.
 - Concerns about damage to places of cultural significance for the Butchulla peoples.
- **Sentiment levels expressed by community, key stakeholder, and user (permit holders) groups on these issues were significant** but generally a little lower for K'gari than those expressed for Bribie Island and Cooloola Recreation Area¹⁶.

The nature of activity on K'gari means that commercial business partners play a more significant role in contributing to management and delivering experiences to visitors than is the case in the other areas focused on this study (Bribie Island and Cooloola Recreation Area). The relationship between QPWS and its commercial business partners is capable of contributing to effective capacity and overall management, as well as maximising business opportunities, however consensus from consultation conducted during the study is that mutual benefits can be improved through finetuning relationships.

Issues to reconcile include:

- Understanding the requirements and challenges of daily and annual capacities for commercial operators and how this can be managed to ensure mutual and management benefits.
- Providing for the appropriate balance of business flexibility in responding to market conditions within the context of management requirements/ permit conditions.
- Addressing the challenges of latency – balancing contractual obligations and businesses' ability to grow, alongside the need for managers to have certainty on capacity.
- Balancing provision of contractual certainty for businesses which enables them to invest in reliable services, and invest in product innovation, alongside the need for managers to provide for evolution in experiences when its required. It is recognised that high quality businesses are needed to deliver on the tourism vision for K'gari.

¹⁶ Studies for Bribie Island and Cooloola Recreation Area were carried out as first phase of project work, prior to this K'gari study

- New and ongoing infrastructure investment at key sites which assists site management and visitor experience.
- Upping best practice standards for commercial operators, to better reflect the special nature and increased obligations worthy of operating in a World Heritage location.

3.4 States (status of habitats and environments)

- Degraded habitats and environments, with bush toileting and damage to dunes/areas surrounding the camping zone 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.

3.5 Management Implications and Responses

Available evidence gathered during the study points towards the need for a focus on individual site management in the short term, accompanied by monitoring of longer-term cumulative impacts.

- Benchmarking the desired state (value), using the surveys conducted during this study as initial user/visitor experience and sentiment benchmarks.
- Development and application of further specific measures for sustainable use.
- Establishment of tools to regulate those measures, and
- Monitoring mechanisms that enable the result of managed use against the desired state to be demonstrated.

3.5.1 Risk Management

The implications of short to medium and longer-term demand drivers of the types noted in section 2 of this report can be viewed in the form of a series of management risks. Considerations include:

- **Visitor safety outweighs other considerations.** It is reasonable to assume that a combination of peak visitor volumes and behavioural issues such as speeding, and dangerous driving in populated beach areas could relate to increased visitor safety risks.¹⁷ There would seem to be a number of visitor hotspot areas, where it would be legitimate to take visitor management actions solely based on improving visitor safety. With increased peak visitor pressure and an increased overall volume of visits, it can be assumed that safety concerns would also grow in proportion to these increases.
- **Hazardous driving behaviour and safety risks could increase, alongside increased visitor volumes** in the future, resulting in the need to consider management responses on capacity, environment, and visitor behaviour.
- Key drivers such as population growth and continued popularity of 4WD/ beach and nature-based activities mean that **the status quo in terms of management arrangements at peak periods may not be tenable** beyond the short to medium term, with pressures highly likely to continue to grow. A combination of capacity management, visitor management, infrastructure and compliance measures will be essential into the future.
- Any **inability to measure** usage or impact to an appropriate level gives rise to potential risk in terms of accounting for statutory obligations under legislation and international agreements:

¹⁷ Technical Appendix 2, Q19

- This can be managed by focusing on gaining a better understanding of the underpinning issues which impact on management obligations, safety, environment, and visitor experience.
- QPWS has systems for recording and regulating Commercial Tourism Operators (CTOs) and camping, but there are currently **no tools employed to regulate overall volume of vehicle-based FIT visitors**. Vehicle access at present is principally via monthly permits - there is no ability to enforce a daily limit on vehicles.
- Visitor volume and behaviour issues are of **concern for the Butchulla peoples, residents, and conservation stakeholders**, as well as from a visitor experience perspective.

3.5.2 Management Options

Given ongoing demand and the characteristics of travel on the Island, a range of management tools are potentially available:

- **Barge capacity offers control.** Without expansion of barge/ ferry capacity or frequency of crossings, there is a finite number of vehicles that can access the island on a daily basis – frequency and maximum capacity of barges and ferries are controlling factors which can potentially limit unencumbered growth.
Operations are at the discretion of Sealink and Fraser Island Barge Transport Ltd (within the terms of their permits), and given that residents, businesses, and resort customers require access at the island, considering the use of barge/ ferry capacity as a capacity management option would not be a reasonable or feasible option to pursue.
- The **relative cost of travel** (in addition to drive time from SEQ compared with other coastal national parks and recreation areas) is a natural controlling factor – the current barge fee from Inskip is \$260 for a return trip with 4WD and caravan. Cost and distance combine to limit high volumes of day visitors unlike the situation at nearby SEQ national parks and recreation areas.
- Overnight accommodation – given the absence of day visitor pressure, management responsibility for the **number and pricing of QPWS-managed campsites is a strong capacity management tool**. QPWS has the ability to flex campsite capacity within a certain range to cater for demand.
- **Communication tools** – a range of website, social media and in-destination tools which support other management techniques.
- **Car park limits at sites provides a degree of management control**, however no advance information is available to visitors which makes this a reactive measure.
- **Day visitors - a lesser issue for K'gari's visitor market.** A degree of management control is exerted via CTO capacity limits for tag along/ tours by day visitors.
- Commercial operators – contracts which provide for exclusive access at key sites, and for set time periods by CTO's. **CTO capacities (daily and annual) provide volume control**, alongside terms and conditions which specify timing/dwelling time for tour groups. An **effective working relationship** between QPWS and CTO partners can contribute to overall management objectives.

3.5.3 Management Limitations

- While barge access is nominally a point of control, **access to volume of traffic, types of vehicles and passenger numbers is incomplete** - access to a full set of this data in a timely manner is a valuable data set. It is the only dataset at present which provides evidence of total visitor numbers. Partnership arrangements with Marine Safety Queensland (MSQ) will be required to gain access to Sealink data, while a more complete set of electronic data is required from the Manta Ray operator to help inform management planning.
- **The lowest level of control is currently able to be exerted by QPWS on the largest visitor market – free independent travellers (FIT)¹⁸**. A cap is not placed on maximum number of monthly VAPs available, and visitation sites are not ticketed/gated/ fee paying, and all sites are open to FITs – outside the cost of getting to the island, management tools on controlling numbers of visitors and the timing of trips to individual sites is limited. In the face of anticipated growing demand, this situation represents a management risk.
- **The volume and impact of private accommodation on the island, and its impact on overall volume and capacity is not understood to a significant extent**. While total volumes of visitors will be picked up with barge numbers and on traffic movements (new automated number plate cameras located at the three barge entry/exit points to the island), no data is available on numbers using these private properties, or their guests' visitation to sites on the island.
- Activity associated with the mix of other land uses and residential communities on the island is largely **outside QPWS's control**.
- There are **no limits on how long visitors can spend at visitation sites**, leading to increasing volumes and potential environmental impact, and decreasing levels of visitor experience.
- At present there is **no appetite from key stakeholders, including the Butchulla peoples, and QPWS to disperse visitors by opening up new sites or tracks** – rather, the focus is on management at existing sites and locations.
- **Tidal patterns exacerbate management challenges**, contributing to peak demand levels.
- **Latent/unused CTO capacity provides an unknown** in terms of ability to fully manage capacity levels. With capacities being able to be transferred with sale of businesses, a further level of management control is lost.
- The recent introduction of automated number plate recognition cameras at Hook Point, Wanggoolba Creek and Kingfisher Resort will bring significant improvement in understanding vehicle volumes. However, **connectivity limitations** currently restrict further expansion of this type of technology which would enhance understanding of visitor movements, and ability to further automate compliance with permits.
- While the operations of Sealink on K'gari are not within the scope of this study, within the context of overall capacity management it is important to note that Sealink currently accounts for a large proportion of overall commercial capacity on the island. As in any destination situation where there is a dominant operator, **ongoing close management co-operation is required to inform sustainable management of the destination**.

¹⁸ Travellers who plan their own trips and prefer to travel alone or in small group

4. Principles for Sustainable Visitor Management Recommendations

The following principles underpin the recommendations for sustainable visitor management actions. The recommendations set out in section 4 of this report directly correspond to these principles.

- The balance of stakeholder sentiment and available management data indicates that the peak visitor volumes are perceived to be too high at key sites. Visitor volume and behaviour leads to reductions in visitor experience as well as the potential for cultural and environmental impacts at key sites. However, to be credible with stakeholders, capacity is not the only issue which needs to be addressed. Sustainable management solutions need to integrate capacity/volume, management, infrastructure, and visitor behaviour. At present, data does not indicate a requirement for overall/cumulative daily capacity to be capped – the focus is on site management.
- While overall island capacity limits are not required at present, overall capacity needs to be monitored closely. When data indicates sites are already too busy at peak periods, additional total holiday numbers (while they may be able to be accommodated on the island) will lead to further pressures on these sites.
- Management approaches for K’gari are twin track – collaborating with commercial partners to best manage these operations and visitor experience, alongside the larger challenge of growing numbers of FIT visitors.
- Management actions need to be aligned with primary obligations for management of the natural environment balanced with the associated nature-based recreation, however stakeholders and user groups are diverse with strongly held views that do not always align with these requirements. As such, presentation as a package (capacity, compliance, pricing, infrastructure, experience) provides an opportunity to gain support and manage expectations.
- Experience: Feedback from user (permit holder), community and business surveys and stakeholder interviews indicate that many of the immediate management concerns identified are associated with visitor behaviour. As a general principle, it is recommended that a suite of management actions including regulatory changes and compliance are considered for implementation with a view to influence a positive change in visitor behaviour, with the impact of actions assessed against desired benchmarks.
- Capacity: Setting capacity limits should be considered as part of the package of sustainable visitor management measures and responses at some sites, through application of new management regimes. While limiting capacity is in many ways a final management response after other avenues have been exhausted, the extent of ongoing drivers and pressures means that it should be considered as a management tool in the short to medium term.
- Determining carrying capacity requires a nuanced approach which relates to visitor demand and the characteristics of the National Park or Recreation Area in question.
- Pricing: Ideally a consistent set of management techniques, pricing and policies would be applied across the parks estate in SEQ, even if only focusing initially on parks which have a high value from a community recreation perspective. e.g., recreation areas. Tiered pricing based on value of setting and experience provided has merit for consideration as part of a suite of management tools.

- Compliance: need to be enforceable. Without appropriate compliance, the management regime is undermined. While non-compliance is considered lower than at other mainland sites, tools such as automated number plate recognition cameras will assist in better understanding and managing this issue.
- Infrastructure: The nature of a sand island is that infrastructure needs to be appropriate and commensurate to its surroundings. Digital infrastructure which aids connectivity is particularly important for future management.
- The stakeholder survey results summarised in **Technical Appendix 2** and their support for a range of management measures provides a sound basis for new management considerations. The visitor management issues identified are largely well known, however, strong levels of community, permit holder and business support give additional weight for consideration of new or enhanced management action.
- The open nature of K’gari means that many of the recommendations are area-wide in scope. Where management data supports it, site-specific recommendations have also been incorporated.

5. Recommendations

5.1 Context for recommendations

The following series of recommendations covering safety, capacity, infrastructure, pricing & fees, proactive visitor management, cultural and environmental management, business & economic measures, and site-specific issues, focus on short-term management considerations.

While there are legitimate concerns regarding the cumulative impact of high volumes at peak periods, evidence gathered during this study does not point towards a need to introduce a daily cap/maximum on vehicles accessing K’gari during peak periods at present.

Options detailed in the following section of this report include considerations for:

- Dispersal of visitors to new locations as a means of spreading the visitor load and pressures at busy sites, with sites such as Platypus Bay and Basin Lake considered as options. However, consensus among stakeholders including the Butchulla people, is that **further dispersal of visitors to new sites and locations is not feasible or desirable**, therefore there should be a continued focus on site management. The nature of visitation patterns on the island mean that despite overall space, pressures are felt most keenly on a small number of sites:
 - ‘Bucket list’ sites such as Lake McKenzie, Eli Creek, Central Station and Champagne Pools.
 - Eastern Beach as a pinch point - where traffic lands from the barge at Hook Point. The nature of Eastern Beach and island orientation is that the beach provides an essential highway to access key locations, a situation that is exacerbated at high tide periods.
 - Tracks leading between popular sites.
- **Maintaining existing roads and tracks** to an appropriate standard as a means of supporting improved visitor experience levels and developing the journeys between sites as a key part of the overall visitor experience on K’gari. For instance, Western Beach roads are popular with visitors (but low quality) as they provide the opportunity for a different experience away from hotspots. Tracks, especially one-way systems, can be an important visitor experience in their own right, especially if interpretation or 'story guides' provide added value. The addition of track features such as laybys or short term parking at appropriate locations can provide mini nodes, further supporting dispersal objectives and relieving pressure on hotspots at peak periods.
- Introduction of **innovative visitor management techniques which better manage demand at popular sites**. With an acceptance that further dispersal is not desirable, this requires a tacit decision to best manage impact at existing busy sites with appropriate infrastructure and management resources – this may require tolerating an acceptable level of activity and impact. These measures (which would be applied differently at sites dependent on circumstances) may include:
 - Changing the focus of site access away from FIT visitors to managed access (CTOs/ the Butchulla people).
 - Considering seasonal variations to capacities.

- Introducing stipulations on maximum time for visitors to stay at a site (for example, 3 hrs) with seasonal variation for capacities.
 - Introducing site access on a bookable basis (paid or free).
 - Visitor management techniques such as requiring parking to be a set distance away from sites.
- While **overall island capacity limits are not required at this point in time**, increasing numbers of holiday visitors do have a direct impact on creating further pressures at key sites around the island, which are already recognised as being too busy at peak times. Close monitoring is required to ensure appropriate management.
 - **Building consensus on a strategic vision for the island among stakeholders which incorporates management of the natural environment and heritage alongside the aspirations of the Butchulla people, communities and businesses.** In this context, with regard to tourism, a clear view on the types of tourism experiences offered and types of visitors being attracted can help inform management planning. The 2032 Olympics provides a focus to build the necessary consensus on an agreed vision i.e.; how should K’gari be presenting itself to the world at that time?
 - **Connectivity improvements are the key enablers** more a range of management and experience improvements i.e., improved booking and compliance automation, along with improved information and visitor services (rainy day entertainment, interpretative information etc.).
 - **Reassessing the permitting regime on the island** (in partnership with the requisite agencies) to potentially incorporate a permit which supports improved management of fishing visitors, helping to minimise conflicts with other visitor groups, particularly during tailor fishing season.
 - **Commercial tourism operators should be an integral part of sustainable visitor management**, working alongside local communities, the Butchulla people, and public sector custodians. Effective contractual arrangements which meet the needs of all parties should underpin management arrangements. There is an opportunity to accelerate a review period (within the context of contracting arrangements introduced under the Queensland Eco and Sustainable Tourism (QuEST) regime) for commercial tourism operators (CTOs), providing a basis to refine contracting arrangements where appropriate to circumstances.
 - **Reviewing campsite orientation** to better meet the needs of a changing market i.e.; growing average size of RVs camping footprint and caravans (orientation, site size, amenities required etc.), and trend towards visitors towing trailers and caravans rather than camping. Zoning to meet distinct market segments can offer opportunities.
 - **Continued and improved communication with visitors** as a key part of sustainable visitor management. On a practical level, effective communications can play an important role in managing visitor expectations (busy periods, best times to travel etc.). In the longer term, the commitment on name change to K’gari provides an opportunity to reinforce messaging on what makes K’gari special, and integrate messaging on visitor behaviour.
 - **Targeted investment in new infrastructure** in keeping with management needs, focusing resources on key sites. Telco-connectivity remains a challenge in terms of safety and aiding

visitor management. Other infrastructure investment which can aid sustainability includes roads and walking trails, sewerage treatment, beach camping dune area protection, and operational management capacity support (workshops, accommodation, operational and incident management facilities etc.).

- Measures which adequately consider **safety and aid the protection of seasonal wildlife/migratory birds** by minimising unnecessary night-time beach traffic movements.
- **Reviewing pricing** in the context of State-wide and other similar jurisdictional considerations. Placing a more appropriate value on camping, vehicle access, and unique visitor experience, and their potential use as visitor management tools.
- **Continued application of a zero-tolerance approach** to visitor behaviour that threatens safety.
- Applying **appropriate penalties** which incentivise compliance.
- Investigate further options **for enhancing compliance capability**.
- Reinforcing the **'leave only footprints'** principle regarding waste generated by visitors on the island. This principle is underpinned by the Butchulla peoples' three lores - *what is good for the land comes first; do not take or touch anything that does not belong to you; if you have plenty, you must share*.
- A **co-ordinated approach to data collection** which informs management planning, building on the improvements which the recent introduction of automated number plate recognition cameras will bring.

5.2 Short to medium term considerations

5.2.1 Consensus on an agreed vision

Feedback from stakeholder consultation indicated agreement on the need for consensus on strategic vision for the island among stakeholders which incorporates management of the natural environment and heritage alongside the aspirations of the Butchulla people, communities and tourism businesses.

With regard to tourism, a vision based around an increased focus on tourism value rather than volume, gained consensus, however, at present there is not a unified tourism vision for the island. If consensus on a vision for tourism can be reached, this is a valuable addition to overall management planning considerations.

Alongside management planning processes (National Park and World Heritage Area), the 2032 Olympics provides an opportunity to build the necessary consensus on a holistic vision.

1. **Vision.** Engage with partners as part of National Park management planning, world heritage planning, and tourism planning processes to build consensus on a vision which is aligned with overall management priorities and the natural capacity of the environment to accommodate it. The shared vision should ultimately cascade through to communication with visitors.

Utilise a shared vision as a context for ongoing partnerships with the Butchulla peoples (commercial operations under K'gari Cultural Tours) and CTOs. This shared vision has the potential to be a basis for review contracting arrangements with CTOs going forward. An agreed view on the type of tourism being planned for (and the experiences necessary to meet visitor expectations) can help provide a framework for this process.

5.2.2 Consideration of measures which improve safety for visitors

QPWS advise that visitor safety remains the number one priority from a visitor perspective. A range of practical measures can be considered to improve visitor behaviour, building on the good progress made by inter-agency compliance initiatives at peak periods. Specifically relating to safety, consideration of the following is recommended for consideration.

2. **Speed.** Stakeholder surveys conducted during the study recorded strong levels of recognition of speed being a significant safety concern, alongside other driving-related behavioural issues.¹⁹ It is recognised that safe beach driving conditions vary with the tides, therefore **current speed limit compliance** is recommended as an ongoing priority, and where possible, continued to be supported by a cross-agency compliance team, with communication on speed limits and compliance being reinforced as a means of providing further support.
3. Linked to measures which enhance visitor safety and protect seasonal wildlife movements, **consider the feasibility of measures which discourage non-essential night-time driving to minimise unnecessary beach traffic movements**, where these measures consider appropriate safety requirements for emergency access and can be supported by monitoring and compliance systems, and available resourcing. There are a number of examples of this type of technique being used in Australia and internationally (seasonally

¹⁹ Appendix 2, question 19

and on a year-round basis²⁰). Enforcing compliance is recognised as being challenging, therefore management actions should initially focus on improved connectivity to allow communication through phones, as the best means of managing visitor behaviour.

Issues for consideration include:

- i. Exclusions may be required for fishing access, camping and emergencies.
- ii. Temporary vehicle exclusion zones (particularly around sections near Eli Creek).
- iii. Visitor Safety is the primary reason to consider restricting night-time driving, however it can also contribute to the additional aim of protecting seasonal wildlife. The impact of interventions will need to be clearly understood and balanced, with any action taken as part of appropriate overall management of K'gari.
- iv. Better aligning driving and access regulations with tidal patterns.
- v. Consideration of activities such as fishing which legitimately may require travel on the beach after sunset, and whether a specific permit (new type) would be required to facilitate this type of activity.

5.2.3 Capacity management as part of a package of management measures

As the world's largest sand island (1,655km²) K'gari offers a significant amount of space for visitors to enjoy and explore, however, shows that capacity challenges are primarily related to peak periods and focused on the island's popular visitor sites. **Available data does not support the need to impose an overall capacity limit on arrivals to the island – the immediate focus should be on site management.**

As noted in sections 1 and 2 of this report, key capacity management issues include:

- The Butchulla people (BAC, BNTAC) have significant concerns regarding peak visitor volume pressures and behaviour, and recognise the need to strive towards a more appropriate balance to protect what makes K'gari special.
- Immediate pressures on infrastructure at key sites and on Eastern Beach have been apparent at peak periods over a sustained period – school holidays, long weekends, public holidays and during tailor fishing season. The consensus from available data is that outside peak periods, volume pressures are manageable at most of the island's key sites.
- Sustained peak levels of daily vehicle movements, related directly to clusters of traffic from barge arrivals and tidal patterns.
- Pressures at popular sites across the island - in addition to the overall setting of the island, its bucket list sites including Eli Creek, Champagne Pools and Lake McKenzie face particular pressures. These sites consistently rate as the most visited destinations on the island, while Central Station also experiences peak periods related to tour vehicles and barge arrivals.

Technical Appendix 4 contains an analysis of capacity observations on K'gari (Fraser Island)

Key observations to note include:

- For the majority of the year, exceeding capacity or peak visitation loads is not a significant issue – there are typically three busy periods – Dec/Jan and Easter holidays and the peak of the tailor fishing season in September.

²⁰ <https://www.broome.wa.gov.au/Home/Tabs/Latest-news/Protecting-our-turtles-with-temporary-beach-closures>

- Demand in 2021 and 2022 related to domestic markets has accelerated significantly. While growth and decline in international and domestic visitor numbers may be volatile of the next 5 year period, the overall trend in visitation is expected to trend upwards. Key measures/triggers for assessing if cumulative demand is reaching concerning levels include:
 - VAP sales continuing to accelerate.
 - Peak occupancies being reached/capacity being reached at campsites more frequently or more extended periods of time.
 - Visitor experience levels.
 - Environmental measures/healthcheck recordings for campsites and key sites.
- Data and understanding of visitor movements is imperfect, however, allied with available information on VAP purchases, the new Automatic Number Plate Recognition System will provide valuable data on total vehicle movements – entry and exit point cameras provide an effective means of identifying total vehicle numbers. More effective and timely understanding of barge vehicle and passenger volumes would also aid management planning.

Consideration of the following is recommended:

4. No overall capacity limits for visitors to the island are considered over the next 3 three year period, until visitor markets have normalised, and visitation patterns are clear, however, cumulative impact will need to be considered if overall visitation continues to trend upwards. There is a direct link between increased holiday visitor numbers and overcrowding at the key sites around the island, which are identified as already being under pressure. Peak holiday periods of Dec/Jan and Easter are the periods where any additional capacity measures would need to be considered. Key areas to monitor to ensure that issues are fully understood include:
 - Barge traffic (Sealink and Manta Ray).
 - Occupancy at campsites and other commercial accommodation.
 - Movement of visitors around the island (supported by improved connectivity).
 - Monitoring of environmental impact with bi-annual to quarterly VBMF health checks

Should capacity limits need to be considered in the future, considerations could include:

- Amending the system of permitting that only has monthly and annual permits at present. Weekly permits which enable better control may need to be considered.

The immediate focus is on individual site management and on improving the management controls available to QPWS and management partners.

5. Camping capacity provides one of the principal tools currently at the Queensland Government's disposal to manage overall visitor numbers on the island at a particular time. At present there is an ability to flex campsite capacity within a range to provide for peak demand. No further extension to overall campsite capacity is recommended at present, while a focus needs to be maintained on issues that health checks have identified with site extension, bush toileting etc. Considerations on campsite capacity include:
 - Maintaining current capacity levels.

- Considering identification/ maintenance of 'reserve' sites in the event of wongari interactions requiring closure of sites which would lead to challenges in accommodating demand.
- Communications which identify preferred zones for different types of visitor groups to help avoid conflicts - fishing visitors, large groups etc, and reinforce regulations on the requirement for visitors to use portable toilets at Coolooloi Creek Camping Area, and Beach camping fenced areas (Wongai, One Tree Rocks, Cornwells and Eli Creek).
- The trend towards more visitors towing vans and trailers, and to larger RV rigs and caravans is creating pressure on campsites, at times resulting in overcrowding. A review of campsite orientation with a view towards zoning and/or communications which directs visitors to camping areas which are better able to accommodate their vehicles can be considered.

5.2.4 Consideration of communication measures which support sustainable visitor management

Improved communication as one element of overall sustainable visitor management and as a tool for culture/behaviour change gained support from all stakeholder groups in consultation feedback. Improved communication could take the form of a range of tactical measures including on the ground information and signposting/ interpretation, the proactive and educational role provided by rangers, digital and website information, and regular communication with permit holders.

Two issues heighten the importance of communications as a management tool:

- The COVID-19 period has seen new visitor segments who previously haven't visited K'gari (Fraser Island) and/or national parks generally.
- The name change from Fraser Island to K'gari, and its potential as a vehicle to support management messages – explaining why the name change is taking place is complementary to overall management intent.

Consultation feedback reiterated the challenges of communicating effectively across a diverse range of stakeholders – public sector partners, local communities, businesses, visitors and not for profit groups/ volunteers. Communication can also be targeted at distinct user groups i.e., P-platers, 4WD enthusiasts etc.

Consideration of the following is recommended:

6. Investigate establishing a **collaborative marketing framework** which reflects the appropriate balance of visitor experience and national park setting for K'gari (Fraser Island), working closely with Fraser Coast Regional Council and regional/ local tourism organisations. An enhanced focus on visitor communications can reinforce the special nature of the island.
7. **Integrate communications as a tool** into sustainable visitor management. For instance, delivering communications on options for dispersal or alternative coastal/ national park locations when booking levels are high or high volumes of day visitors can be a valuable tool. This type of initiative can be delivered by QPWS via its digital and social media channels but will also have much more weight if co-ordinated with tourism organisations and councils. This type of tool has value from the perspective of improving visitor experience as well as helping to mitigate potential impact from high visitation levels.

Improved digital connectivity on the island is a key enabler to maximise the potential of visitor communications as a management tool.

If booking system development in the longer-term has the ability to link tidal patterns with site capacity and accessibility, this would provide a powerful dynamic booking platform and management tool.

8. **Investigate further resourcing of education and promotion of positive visitor behaviour.** Communication and education provide effective pathways for raising awareness of the natural and cultural values of K'gari (Fraser Island), visitor opportunities, safe and positive visitor behaviour, and pathways for reporting negative behaviours. Ongoing use of communication platforms such as websites, apps, push-notifications, and social media provide an effective way to promote positive behaviour.

If ongoing resourcing and enhanced messaging and tools targeting different user groups such as fishers, P-platers, and families could be delivered, this would assist in promoting messages about any site management and compliance changes.

Any communication/education messages should also consider the context of:

- Marketing which describes the name change to K'gari. Marketing around this topic has the potential to reinforce the special nature of the place and how visitors are encouraged to enjoy it.
- K'gari's World Heritage Status.
- If partners reach consensus on an overall tourism vision for the island, management and educational communications should be aligned with this.

5.2.5 Delivering improved management and sustainable economic business and economic benefits through commercial tourism

Commercial operators on K'gari (Fraser Island) provide an important means of delivering the economic potential of the destination, supporting employment, and generating local expenditure. Their operations within the terms of their permitted terms and conditions also can contribute to effective management of the destination. Commentary in section 3.3 of this report has identified the opportunity to review contractual and management relationships between QPWS and operators.

It is not within the scope of this report to provide comment on the specifics of contracts, given that unique circumstances will apply in each case, however, to aid management and support businesses in their operations there is merit in accelerating midterm contract reviews within the context of QuEST arrangements. Scope to negotiate in good faith for all parties is needed, therefore opportunities may include:

- Setting discussions within the broader discussion on an agreed vision for the island, incorporating tourism.
- Management concepts such as CTO-only access to some sites.

Consideration of the following is recommended:

9. Instigate a **mid-term review of contractual arrangements and review of returns data** with CTOs (under QuEST) which provides a framework to move forward on effective operational and management arrangements. Scope of the review can include:
- Latency/capacity provision
 - Length of tenure

- Daily and annual capacities
 - Compliance with permit conditions
 - Bringing options on new management arrangements to the table – for instance prioritised CTO access to some K’gari sites, which can offer some scope for negotiation on other issues.
10. Consider undertaking a **review of the types of experiences** which are prioritised for permits within the context of management planning and an agreed tourism vision for the destination. There needs to be comfort in the balance of activities that take place within the World Heritage Site/National Park setting and the evolving visitor market expectations of experiences available in a world class ecotourism destination. The 2032 Olympics provides a context – what experience are we collectively wanting to offer visitors when Queensland is the focus of the world’s attention?

5.2.6 Investing in infrastructure which supports sustainable visitor management

The provision of appropriate dedicated infrastructure, given the linear nature of the beaches and characteristics of the area, and the opportunity for additional infrastructure to play a role in sustainable visitor management is reasonably limited. However, consideration can be given to the following:

11. While communications infrastructure is not a QPWS-led matter, consideration could still be given to the **enhancement of communication capabilities/ connectivity across K’gari (Fraser Island)**. Better connectivity can provide for improved communication by mobile phone between QPWS and Queensland Police Service (QPS) and for the use of electronic devices that rangers use to perform real time VAP, camping permit, vehicle registration and driver license checks. Enhance fire safety management capability and capacity is a particular consideration.

From a management and visitor experience perspective, enhanced connectivity is the key to offering improved management. For instance:

- Proactive communications to visitors on the island which alert them to the best times to visit sites based on how busy they are and tidal access. This can be done by digital road signs, which is rather obtrusive in the setting, but a better tech-driven solution would be via an app/mobile optimised web access/push notifications that provide real time information - ability to provide this solution is entirely dependent on improved connectivity.

- 12 Significant infrastructure investment is required in roads and recreational infrastructure, to meet current and future demands. Sustainable visitor outcomes relate to minimizing impacts induced by visitor access such as erosion and vegetation disturbance, while visitor waste management has potential impacts on ground and surface water quality and visitor aesthetics. Proactively, investment in roads and track infrastructure (and related interpretative infrastructure and materials) can also be used a visitor management tool to support dispersal and manage peak visitor numbers at key sites.

5.2.7 Consider Pricing and Fees that Reflects Demand and Management Costs

Camping Permits

Seasonal pricing across most types of tourism experiences is an accepted tool to support demand management and visitor management as part of a package of measures. The current camping fee structure of \$6.85 per person per night, or \$27.40 per family²¹ per night is a uniform rate applied across all camp sites. In comparison, most other states and territories apply more flexible and sophisticated pricing systems which take account of demand in separate locations as well as seasonal/peak periods.

In comparison to commercial providers and the price levels levied in other states and territories, the current \$6.85 fee is low. Certainly, the market could bear an increase without impacting on demand. Equivalent basic commercial campsites in the Fraser Coast region are typically in the \$20 to \$40 per couple²² range. It is recognised, however, that pricing at K'gari is driven by government policy, and that decisions around reviewing fees (including the option of considering per site rather than per person camping fees) would need to be considered by government within a State-wide context at an appropriate time.

Vehicle Permits

Regarding VAPs, an analysis of National Park fee comparisons is contained in **Appendix 3**.

Current VAP pricing for K'gari is

- 1 month or less = \$55.90
- More than 1 month (up to 1 year) = \$281.40
- K'gari (Fraser Island) and Cooloola Recreation Area - 1 month or less = \$89.80, or more than 1 month (up to 1 year) = \$450.60

If government considers that future pricing changes (camping or vehicles) can be presented as a larger package of management measures which support enhanced visitor experience, habitat protection, infrastructure investment, and better manage the space, this offers potential to build acceptance. It is recognised that hypothecation of revenues can be challenging for governments, however, being able to demonstrate to customers how their contributions are directly supporting improved management (capacity limits, enhanced compliance, improved infrastructure etc.) can be valuable.

Consideration of the following is recommended:

- 13 To support consistent facility provision and maintaining quality of experience, subject to government policy, consideration within a longer-term State-wide context could be given to implementing **new pricing structures for camping and vehicle access**. Options could include:
 - i. If the current per person pricing regime for camping is maintained, government could consider raising the daily camping fee to a minimum of \$10 per person²³. This level of fee remains below the norm in a range of commercial camping options across Fraser Coast and Southeast Queensland. Given the demand for camping on K'gari at peak

²¹ A family group is defined as one or two adults and accompanying children under 18, up to a total of eight people. Children under five years of age camp for free

²² EarthCheck research (caravan and camping sites listed on visitmoretonbayregion.com.au)

²³ Review of local Moreton Bay camping options indicates a typical price by person of approximately \$15 per person across a range of commercial caravan and campsites.

times it is also reasonable to consider the option of setting a higher fee for this area compared to QPWS sites elsewhere in Queensland at peak times.

- ii. Consideration of a move to bookings being on a site rather than per person basis.
- iii. Given K'gari's World Heritage Area designation, consideration of an additional entry fee (or a surcharge to Camping fees and VAPs) reflecting this status. Additional fees of the type are applied to a number of World Heritage Areas around the world and can be levied as either a separate fee (dependent on the status of the World Heritage Committee) or included as part of an entry fee or permit. The application of this type of fee would be best considered at Queensland level.
- iv. Given the challenges and demand that destinations such as K'gari (Fraser Island) face, the introduction of peak period or variable pricing has merits. Review of local caravan and camping sites indicates that approximately 50% use variable pricing, albeit the fee differential between peak and low seasons tends to be modest (approximately 10%). Once again, if related directly to quality of experience, infrastructure maintenance and effective management, acceptance for a fee increase/ seasonal pricing can be built. Feedback from stakeholder surveys conducted during this study is supportive of this type of measure being considered.
- v. Consider enforcing the current legislated modification fee for camping (\$15 fee for every third modification) or building in a stronger incentive (applying the fee to every booking, or every second booking) to directly address the habit of customers booking exclusive use of sites and modifying bookings continuously to secure a site 'in case' they decide to camp.
- vi. The current relatively low camping fee levels are one of the reasons behind the recurring issue of ghost bookings/no-shows. Subject to Government policy, providing for pricing of peak period VAPs can be considered as a means of addressing this issue. While changes to the permitting regime to include daily permits are not recommended in this report, as a context, daily rates of \$40 per vehicle/\$20 per person apply State-wide (excluding Cradle Mountain) in Tasmania, compared to the \$55.90 per month fee for K'gari.

Within the context of expensive travel to K'gari (\$260 return for 4WD and caravan), the \$55 monthly fee is reasonable – increasing the monthly fee is unlikely to have significant management impact.

5.2.8 Permit framework

Consensus from stakeholder feedback is that the permitting regime remains appropriate as a management tool. The system of monthly and annual permits is adequate – annual permits account for a small proportion of overall volume of travel at present. Major changes to permits would only be needed if a move towards implementing a cap on capacity is required.

Consideration of the following is recommended:

- 14. Review the need and demand to retain the joint K'gari (Fraser Island)/ Cooloola VAP – while not significant within overall management, if VAP options can be further simplified, this will aid management information.

15. In partnership with marine agencies and/or other departments (e.g., DAF), consider instigating a fishing permit during the tailor season as a tool which provides for better management of this customer market. A distinct permit would help understanding of the volume of this market (and use of key sites around the island), and could be linked to identified camping zones as a means of minimising conflict between user groups.
16. Visitor use of commercial accommodation (private rentals) across the island is currently exempt from permit requirements with the exception of the need to purchase a VAP. Overall impact of visitor volumes staying in this accommodation at sites around the island is not fully understood, but it is appropriate to consider how an appropriate fee or levy can ensure that visitors contribute to overall park management. There are opportunities to work with Fraser Coast Council to understand available opportunities.

5.2.9 Effective compliance which supports a great visitor experience

User, community and business surveys indicate strong sentiment towards the importance of effective compliance.

Specifically relating to behaviour change, **consideration of the following is recommended.**

17. Take a **zero-tolerance** approach to important compliance matters (speed, reckless driving, wilful damage, causing nuisance, environmental damage). This measure gained strong support in consultation feedback across all stakeholder groups. Alongside effective communication and information (potentially in the form of a communication/ messaging campaign), zero tolerance can be a key pillar in the overall approach to compliance and enforcement, albeit implementation and resourcing challenges are noted.
 - i. Linked to the ability to improve connectivity on the island, introducing enhanced compliance monitoring (wider technological base monitoring), Automatic Number Plate Recognition System monitoring, and cross-referencing booking monitoring and automated Penalty Infringement Notices (PINs), can play an important role in supporting a zero-tolerance approach.
18. Applying **appropriate penalties which incentivise compliance**. This issue received strong support across stakeholder surveys and consultation feedback. Subject to legislative change in some cases, and agreement with partners including QPS, options for consideration include:
 - i. Introducing increased penalties which function as a more effective deterrent to inappropriate behaviour. For instance, the ability for rangers/ authorised officers to issue driving penalties in the same manner as QPS i.e., demerit points on licences as well as fines for driving offences. It is appreciated that legislative change to support this type of measure would need to be supported by Government, however this type of penalty is likely to have significantly more impact than modest financial penalties alone. In this regard, penalty infringement notices issued by rangers for the same driver conduct-related offence currently attracts approximately half the penalty amount as when dealt with by a police officer.
 - ii. At present, many of the behaviour problems experienced are attributed to younger age groups, including P-plate drivers. Focusing regulations to this age group seems a practical solution but it does raise valid social concerns. An option to consider is the impact of compliance measures that apply to all visitors but would have a particular

impact on this visitor demographic – for instance, applying double demerit points to driving offences on the beach.

- iii. Active application of existing driving and related regulations (e.g., no passengers in P-Platers' cars after 11pm) to build the deterrent levels for beach driving offences, and alignment with the Department of Transport and Main Roads (DTMR) -based driving related offence penalties and driver licence related points system (as enforced by Queensland Police). For instance, hooning laws allow for measures such as impounding vehicles and banning vehicles from the road. Knowledge that these laws are being applied can potentially have a significant impact on behaviour.
- iv. Enhancing change to "Direction to Leave" provisions. At present a visitor who is directed to leave a Recreation Area can return after 24 hours. Changing provisions to make this a 7 day or longer period (relative to the type/seriousness of offence) would ensure offenders were not able to reconvene immediately after being directed to leave.
- v. For identified offences, the ability to prohibit visitors or identified vehicles from visiting the area is a potentially valuable compliance tool. The key to application of this type of measure is incorporating unique identifiers into VAP and camping booking systems. Technological solutions which support verifiable ID would be ideal - validating as correct upon the vehicle details being presented before proceeding with the purchase of the permit.
- vi. Explore system capability to link VAPs to PINs, to enable repeat offenders being prevented from obtaining VAPs for an identified period.

19. Compliance Resourcing. There is consensus among all stakeholders about the increasing scale of task for rangers or authorised officers and partner agencies.

Recommended options to consider include:

- i. Continued co-ordinated collaborated action among partner agencies – QPWS, QPS and DTMR. Resourcing constraints are recognised, however the ability to support the application of a new package of compliance measures for K'gari (Fraser Island) consistently over a period of time has the potential to bring about significant behaviour change if feasible.
- ii. Given the scale of the visitor management challenge in SEQ Parks including high-volume locations such as K'gari (Fraser Island), consideration of recruiting QPWS teams with strong compliance/ enforcement skills has merit. For instance, subject to additional Government resourcing being identified, a dedicated compliance team (authorised officers in the RAM Area) could support ranger teams on the ground through SEQ at peak times to enhance overall management capability. If financially feasible, this dedicated type of compliance team(s) could potentially be an efficient and effective means of achieving improved levels of visitors' education and compliance, through both direct intervention and operational training and mentoring of local rangers.
- iii. Continued adoption of technological solutions which aid management is also an important consideration. Installation of number plate recognition cameras are a positive step forward, however, functionality can be further enhanced with integrated devices and systems which provide QPWS with greater understanding of

visitor and CTO vehicle movements alongside the ability to incorporate automated enforcement and monitoring tools.

5.2.10 Proactive Visitor Management

A wide range of practical ideas were suggested by stakeholder groups to improve safety and visitor experience and minimise potential for environmental impact and conflict between user groups. It is natural that there are varying views among stakeholder groups on management options which should be prioritised.

Consideration of the following is recommended:

20. **Campfires in National Parks** remain a contentious issue, with many respondents to the stakeholder surveys seeing campfires as part of camping experiences. However, in this area, safety considerations should continue to be the primary consideration. In areas such as K'gari (Fraser Island) which have high bushfire risk and challenges with connectivity, the ban on open fires outside fire rings in designated campsites is essential. A short-term priority to review communications to ensure there is clarity about what type of cooking/BBQs are allowed, should be considered.
21. **Minimising potential for user group conflict** is an ongoing management issue in most National Park settings, with zoning being a common mitigation technique. As visitor numbers grow, the rationale for considering distinct zones will grow stronger (for example – camping groups, fishing groups etc.).

5.2.11 Management measures which support conservation and enhancement of habitats

Degradation of habitats is one of the impacts of peak visitor volumes and inappropriate visitor behaviour.

Consideration of the following is recommended:

22. Anecdotal feedback suggests that lack of good quality information on the **impacts of visitors on environmental values** is a limiting factor for overall sustainable visitor management. Options to consider include:
 - Annual onsite health checks are currently conducted and provide valuable detailed information on site issues. For key sites, consider conducting health checks (within the context of the Values Based Park Management Framework) on a more regular basis (potentially twice yearly or quarterly before each holiday period i.e., health at a glance), however the initial focus should be on determining the key environmental issues which need to be measured. An onsite evaluation (based on a consistent framework) accompanied by onsite monitoring data can guide prioritisation of research/monitoring investment and outcomes.
 - Explore additional partnerships with university and conservation partners on specific priority research areas.

Degradation of habitats is one of the impacts of peak visitor volumes and inappropriate visitor behaviour.

Consideration of the following is recommended:

23. Anecdotal feedback suggests that lack of good quality information on the **impacts of visitors on environmental values** is a limiting factor for overall sustainable visitor management.

5.2.12 Waste

Island destinations have particular challenges regarding waste generation and disposal – QPWS already works in partnership with Fraser Coast Regional Council on waste management services. With increasing visitation, waste management is expected to grow is an issue of concern.

Consideration of the following is recommended:

24. Through improved communication with visitors, reinforce the 'leave only footprints' principle regarding waste generated by visitors on the island. This principle is underpinned by the Butchulla peoples' three lores - what is good for the land comes first; do not take or touch anything that does not belong to you; if you have plenty, you must share.
25. Continue to work closely with Council on a net zero waste commitment, investing in appropriate recycling stations.

5.3 Site-Specific Recommendations

As noted throughout the report, the nature of visitation patterns on K'gari (Fraser Island) is that many recommendations around capacity and sustainable visitor management need to relate to individual site management. A range of options can be considered in this regard:

- Communication as a management tool – spreading the visitor load around the island.
- Technical innovations to aid visitor orientation and choice of sites to improve overall experience. At present, this has limited potential due to poor connectivity across the island.
- Introducing pricing as a management tool, for instance - fee paying access for individual sites.
- Introducing the requirement to book sites within the scope provided by high tides (free or fee paying Bookability can apply).
- Utilising timing as a management tool – applying visitor stay limits at sites (either on a mandatory or voluntary basis).
- Flexing the balance of FIT and managed access to sites – for instance, limiting site access to CTO/managed groups only.
- Managing individual site capacities – shifting the preferred balance to CTOs away from FIT (need management tools to achieve this)

The other key consideration with this raft of potential measures is the knock-on implications of action at individual sites. For instance -limiting the time spent at certain locations, is likely to mean more vehicular movements. Similarly changing access arrangements at one the lakes sites may result in substitution of visitors to other sites. As such, measures will need to be introduced on a trial basis to fully understand site and island-wide impact.

5.3.1 Eli Creek

Eli Creek is a bucket-list site on the island and is busy on a consistent basis. Characteristics include:

- A busy location enjoyed by CTOS and FITs.
- Behaviour challenges with visitors (long stays, alcohol-related behaviour, bringing large amounts of belongings)
- An open site, where management control options are limited.

Considerations include:

1. For this location, there is an acceptance that Eli Creek will continue to be a busy location, with appropriate infrastructure required to manage the visitor load. Given the open beach-side location, not all management options are appropriate.
 - Trial 4WD parking management away from directly adjacent to the Creek as a means of regulating visitor behaviour/encouraging lower impact stays. Alongside this measure, application of a vehicle exclusion zone on the creek edge and beach interface would potentially provide an additional means of improving visitor safety and experience.
 - At peak periods, consider the merits of trialling 3 hr maximum stays. It is recognised that enforcement may be challenging (including tides) therefore trialling as a voluntary measure is recommended.
 - Additional interpretative material on site and communication via ranger on the ground which focuses on mitigating visitor behaviour.

5.3.2 Lake McKenzie (Boorangoora)

Lake McKenzie is another bucket-list location on the island. Characteristics include:

- Behavioural issues, not respecting the cultural significance of the site.
- High peak demand exceeding car park capacity.
- Excess demand is exacerbated by there being no means of alerting visitors to capacity before starting a long journey to the site at present. Improved digital connectivity and further development of booking systems are the key enablers for a more proactive approach to management.
- Site hardening/extension caused by traffic volume/ parking.
- A culturally important site for Butchulla people.

Considerations include:

2. Implementing a trial of making Lake McKenzie accessible via CTO (working with the Butchulla people) or managed access only.
 - Exemptions would be required for visitors prepared to walk to the site from the closest trails and entry points.
 - If a move to managed access is not preferred, evolving the site into a bookable experience provides an alternative visitor management technique which could be applied. Booking could be free or chargeable, however, the intent of booking is to move the site to a regime which controls numbers. Timings may involve differing between FIT and CTO to assist in visitor management.

5.3.3 Central Station

Central Station is a busy central hub and is often a first stopping point for buses and FITs from the barge. Characteristics include:

- Health checks note significant concerns regarding the day use area, parking, and rainforest experience.
- There is an opportunity for Central Station to perform a park and ride role for accessing Lake McKenzie (if CTO only access) - a review of capacity would be necessary to understand impact and feasibility.
- The island currently lacks a main interpretative hub, as often found at world heritage sites - usually these are in the form of a visitor centre that plays a number of roles such as:
 - A physical hub for visitor management in funneling visitors to other parts of the site.
 - A revenue earning opportunity – paid access.
 - A focal point for interpretation, storytelling, and orientation.
 - A physical hub for offering services and tours
- A redevelopment of the station is to commence; however, this is a large undertaking and will take a significant amount of time.

Considerations include:

3. Management mechanisms that better support Central Station's role as an interpretative hub, including:
 - Trialling timed access to the site for visitors (if supported by connectivity).
 - Review opportunities for the location to act as a staging point for accessing Lake McKenzie – principally this would focus on space for parking and orientation etc.

- Review opportunities as part of development to establish a visitor management and interpretative hub – this location provides an appropriate location for the Butchulla people to provide an experience offering to visitors if active engagement in tourism is a priority.

5.3.4 Maheno

The strong and recognizable imagery around Maheno makes it a popular destination for visitors. Characteristics include:

- Health checks note significant concerns re extension of footprint at the camping zone, bush toileting, day visitor impact, campfire/vandalism/behavioural issues
- Safety issues with climbing on the wreck.

Considerations include:

4. The focus for Maheno is on compliance at the wreck and camping zone (safety issues, bush toileting, behavioural issues etc.), and utilising improved communication with visitors as a management tool. It is an open beach location which limits the application of other management techniques.

5.3.5 Champagne Pools

Characteristics of this busy location include:

- Parking is exceptionally busy at peak times – driven by groups and FITs. Distance to the site, towards the northern end of the island means that visitors once they have committed to travel are likely to persist and visit the site.
- The site offers one of a small number of safe swimming locations.
- Timed access for FITs to the site is challenging given impact of tidal conditions to access the site.

Considerations include:

5. The focus for Champagne pools is on:
 - Communication – when connectivity improvements allow, this is a site where experience could be improved by near live information or push notifications to notify visitors if it is a good time to visit.
 - Practical implementation of site hardening – the site is going to continue to be busy.

5.3.6 Indian Head (Tukkee Wurro)

Access to the site is currently prohibited, with the site being an especially sensitive location for the Butchulla people. The Butchulla people are understood not to be supportive of reopening visitor access, but removal of access for CTOs has had the result of further limiting trip options, and condensing visitors into one fewer location

Considerations include:

6. Maintaining the current policy of closure to visitors and consider communication/ interpretation options as an alternative way of telling the story and providing visitor insights. Options also include:

- a. Provision of interpretative information at a location close to Indian Head (Tukkee Wurro) or off-site at a central location such as Central Station. Telling the story with the addition of Visual Reality/Augmented Reality has the potential to add value.
- b. If considered appropriate by the Butchulla people, enabling access to the site by Butchulla-guided tours.

5.4 Longer term Considerations

Longer term management requirements will need to be informed by appropriate data, but there is little doubt that population growth, alongside a range of societal trends will mean increased demand for recreational space. Noting the short to medium term considerations, and recognition of population growth and nature-based opportunities, it is likely that management techniques such as visitor caps, site management and limitations, enhanced and ongoing compliance, and education, may need to form part of long-term management strategies.

Longer term management considerations include:

1. Access to the area requires 4WD vehicles, which in large part, is where environmental, resident and visitor amenity concerns stem from. In the longer term, if visitor vehicle movements on the beach are to be managed, **innovations** such as beach shuttle buses may be considered and a commercial opportunity for Butchulla people. Examples such as the Royal National Park bus service²⁴ (NSW), the shuttle service at Point Nepean National Park (VIC) and in US National Parks²⁵ show that these types of services can have a role to play in visitor management. While not a beach setting, the shuttle bus transport arrangement in Tasmania's Cradle Mountain/Lake St Clair National Park was specifically set up to protect the important values of the World Heritage Area and preserve the visitor experience by limiting vehicle numbers in the park.
2. **Consideration of seasonal, or sectional closures** to parts of the area, accessibility infrastructure permitting. There are numerous examples of this type of measure in National Parks around the world, which can often be driven by issues such as nesting seasons, as well as providing a period for natural rejuvenation. As an example, a decision has recently been made to restrict vehicle access to Broome's Cable Beach²⁶ at night during turtle nesting season.
3. Anticipated continued growth in demand means that hardened infrastructure and application of enhanced visitor management alone is unlikely to retain the desired service levels for K'gari.
4. Further **zoning** which identifies the areas that can accommodate larger visitor numbers may be required, alongside appropriate dedicated infrastructure and management resources
5. Review the ability to provide for **additional parking requirements at Central Station** to function as a staging point for accessing Lake McKenzie i.e., park and ride. This would be

²⁴ <https://www.nationalparks.nsw.gov.au/things-to-do/guided-tours/royal-national-park-bus-service>

²⁵ <https://www.nationalparkstraveler.org/2009/07/park-shuttle-bus-systems-are-growing-popularity-heres-look-some-popular-examples>

²⁶ <https://www.broome.wa.gov.au/Home/Tab/Latest-news/Protecting-our-turtles-with-temporary-beach-closures>

required if the decision were taken to trial access to Lake McKenzie being via CTO and/ or Butchulla guided tours only.

6. **Continuing exploration and adoption of technologies** such as Radio Frequency Identification (RFID) incorporation into permits will be required to aid sustainable visitor management. RFID technology enables greater understanding of visitor movement and activity, as well as supporting compliance (in principle, RFID technology could be integrated with compliance systems, resulting in automated issuing of PINs).
7. While QPWS has no influence over decisions by telecommunications companies on **connectivity infrastructure** and does not invest in this type of public access communications technology, improved communication connectivity infrastructure would support visitor safety as well as visitor management and compliance initiatives. Partnership opportunities to enhance connectivity should continue to be explored.
8. **A SEQ-wide approach to planning for beach and recreation access**, including working with Councils and other landholders. If capacity limits on K'gari (Fraser Island) are such that future demand is unable to be met, area-wide planning and solutions may be necessary. An area-wide approach can relate to planning for 4WD opportunities across SEQ.

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the \mathbb{R}^n is a linear space over \mathbb{R} with the usual operations of addition and scalar multiplication. The inner product is defined by

$$(x, y) = \sum_{i=1}^n x_i y_i \quad (1)$$

where $x = (x_1, \dots, x_n)$ and $y = (y_1, \dots, y_n)$ are vectors in \mathbb{R}^n .

The norm of a vector x is defined by

$$\|x\| = \sqrt{(x, x)} = \sqrt{\sum_{i=1}^n x_i^2} \quad (2)$$

and the distance between two vectors x and y is defined by

$$\|x - y\| = \sqrt{(x - y, x - y)} = \sqrt{\sum_{i=1}^n (x_i - y_i)^2} \quad (3)$$

The angle between two vectors x and y is defined by

$$\cos \theta = \frac{(x, y)}{\|x\| \|y\|} \quad (4)$$

where θ is the angle between x and y .

The orthogonal projection of a vector x onto a vector y is defined by

$$\text{proj}_y x = \frac{(x, y)}{(y, y)} y \quad (5)$$

and the orthogonal distance from a vector x to a vector y is defined by

$$\|x - \text{proj}_y x\| = \sqrt{\|x\|^2 - \frac{(x, y)^2}{\|y\|^2}} \quad (6)$$

The orthogonal distance from a vector x to a subspace S is defined by

$$\|x - \text{proj}_S x\| = \sqrt{\|x\|^2 - \sum_{i=1}^k (x, e_i)^2} \quad (7)$$

where e_1, \dots, e_k is an orthonormal basis for S .

The orthogonal distance from a point x to a line L is defined by

$$\|x - \text{proj}_L x\| = \sqrt{\|x\|^2 - \frac{(x, d)^2}{\|d\|^2}} \quad (8)$$

where d is a direction vector of the line L .

The orthogonal distance from a point x to a plane P is defined by