

Engagement summary report (Part A)

Adelaide Beach Management Review –
Values and long list engagement

Engagement summary report (Part A)

13 July 2023

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URPS Ref 230616_v1_Engagement Summary Report

Document history and status

Revision	Date	Author	Reviewed	Details
V1	6/7/23	Z. Hambour	N. Halsey	Initiation of report
V2	13/7/23	Z. Hambour		Responding to edits from client (these edits did not alter participant voice or the quantification of responses)

We acknowledge the Kaurna People as the Traditional Custodians of the land on which we work and pay respect to their Elders past, present and emerging.

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Snapshot

This section summarises key feedback in this report. Further detail is provided in the report body.

Between 28 April and 9 June 2023, the Adelaide Beach Management Review engaged with community and stakeholders to understand:

- What outcomes and values are important about how sand on beaches could be managed?
- How do these relate to the goals of the review?
- Are there any sand management approaches not on the existing long list that should be considered?

Participation was encouraged through postcards delivered to coastal properties and signage along the foreshore between Kingston Park and North Haven. Advertisements were placed in the Advertiser newspaper and the YourSAy and Department for Environment and Water 'Our Coast' e-newsletters.

Participation

- 601 people responded to an online survey. Most were aged 46-75 years old and were a frequent visitor to Adelaide's beaches and nearby resident or business. Most respondents resided in Semaphore (14%), West Beach (13%), Largs Bay (11%), Henley Beach (7%), Henley Beach South (7%) and Grange (6%)
- 55 people from across 35 organisations attended a stakeholder workshop by invitation
- 119 written submissions were received from 105 individuals and 14 from groups or organisations.

What do the goals of the review mean to community?

The following are **quantitative** results from the online survey

Minimise disruption to communities*	• Sand management vehicles on beaches and permanent plant or equipment that impacts on views ranked <u>most</u> disruptive • Temporary plant and equipment or infrastructure that interrupt views ranked <u>least</u> disruptive:
Avoid environmental harm*	• Protecting coastal habitats, native plants and animals, and maintaining the integrity of existing sand dunes ranked <u>most</u> important: • Avoiding carbon emissions from transport and operation of machinery, and protecting and acknowledging First Nations heritage ranked <u>least</u> important:
Maximise sand staying on beaches	• 44% of respondents would like to change the way sand is managed so that it is more evenly distributed. 37% would like to continue to manage it to maintain its current condition. 19% would like to reduce the amount of intervention in coast management • Sections of coast where more sand is needed: West Beach (55%) and Henley Beach or Henley Beach South (41%), no sections (26%) • Sections of coast where less sand is needed: No sections (57%), Between 22% and 28% of respondents think the sections of coast between North Haven and Semaphore South/Semaphore need less sand

* The survey acknowledged that all these activities are disruptive or are important but asked participants to rank which mattered most

Key themes of feedback

Comments provided across the engagement activities highlighted the following most frequently raised themes of feedback (listed in no particular order). These are explained in more detail in the report.

- Managing impacts on beach amenity and access, during construction and operation, for beach users, residents, businesses, and visitors to support ongoing use and social and economic benefits
- Managing the impacts on dunes and recognising the important role they play in coastal protection, beach ecology and amenity
- Managing impacts on local biodiversity (e.g. plants and animals on the beach, in dunes and in the ocean)
- Concerns that the survey design was biased and did not provide opportunity to provide views
- Opposition to a pipeline and sand mining due to dune, beach, environmental and community impacts and inadequate grain size on northern beaches
- Desire for best practice solutions driven by data, science and expert opinion
- Opposition to sand carting due to impacts on beach use and safety and a desire for a more sustainable solution
- Desire for a solution that is resilient to the impacts of climate change, storm surges and king tides
- To not play politics by pitting communities against each other or by not listening to the science and getting something done
- Manage noise, dust and beach safety
- Improve the equity of sand distribution.

Approaches advocated for

Comments provided across the engagement activities highlighted the following most frequently advocated approaches (listed in no particular order). These are explained in more detail in the report.

- Solutions driven by science and international best practice
- Mass sand nourishment using sand barged or piped to the nearshore environment
- A pipeline (although 'against a pipeline' was a frequently raised theme of feedback, advocating for a pipeline was raised at the stakeholder workshop and in response to the long list question in the survey)
- Preventing erosion and capturing and holding sand
- Offshore structures to slow water movement (e.g. artificial reefs)
- Seagrass restoration
- Coastal and dune rehabilitation and revegetation
- Limit or remove built structures along the coast (e.g. buildings, boat ramps and groynes)
- An approach that prioritises a long term and best outcome over its cost
- Using sand from other sources (e.g. quarry sand, sand from interstate or overseas, dredging and barging sand from offshore or the Murray Mouth, using an appropriate grain size to limit drift)
- Do nothing or manage and accept fewer sandy beaches.

Analysis by sections of coast

Survey results were analysed based on the section of coast respondents most visit. Responses for coast sections were consolidated into existing management cells (See assumptions in 3.1.2).

Number of respondents who most often visit sections of coast in each management cell

- Cell 1 (Kingston Park to Glenelg) - 92
- Cell 2 (Glenelg North) - 5
- Cell 3 (West Beach) - 90
- Cell 4 (Henley Beach South to Semaphore Park) - 184
- Cell 5 (Semaphore South to Semaphore) - 128
- Cell 6 (Largs Bay to Osborne) - 100
- Cell 7 (North Haven) - 2

As cells 2 and 7 had only two and five responses respectively, care should be taken in extrapolating their results to a wider population.

Reasons for visiting section of coast	Why respondents choose their most visited section of coast • Across all cells, 'close to my home or home of friends/family' was the top reason respondents visit their most visited section of coast. <u>Other top reasons to visit</u> • The natural coast environment - cells 4, 5 and 6. • It is less crowded – cell 6 and 7 • It's a safe beach - cell 1 and 3 • Easy access via paths of step – cell 3 and 7 • Beach width and sand area quality - cell 1, 2, 4 and 5 • Wave conditions – cell 2 What respondents do at their most visited section of coast • Across all cells respondents visit the coast to walk or run on the beach or to walk, run or ride along paths next to the beach • Other top reasons to visit: swimming (cell 1, 2, 4 and 5), visiting cafes or shops along the foreshore (cell 1 and 3)
Minimise disruption to communities	Permanent plant and equipment that impact views was ranked most disruptive in all management cells except for cells 3 (West Beach) and 5 (Semaphore South to Semaphore) which ranked sand management vehicles on beaches as most disruptive. Cell 1 (Kingston Park to Glenelg) ranked sand management vehicles and permanent plant and equipment as equally most disruptive.

Avoid environmental harm	Protecting coastal habitats, native plants and animals and maintaining the integrity of existing sand dunes were the most important environmental protection examples across all cells with the exception of cells 2 (Glenelg North) and 7 (North Haven). Cell 2 identified avoiding carbon emissions and avoiding disturbance to natural areas. Cell 7 identified Protecting coastal habitats, native plants and animals and restoring nearshore aquatic habitats.
Maximise sand staying on beaches	• Cell 2 and 3 – Over 80% would like to change the way the coastline is managed so that sand is more evenly distributed • Cell 4 - 64% would also like more even distribution of sand, however 31% would like to maintain the coastline's current state • Cell 1 - around 40% each either want to maintain the current condition of the coastline or distribute sand more evenly • Cell 5 and 6 - more evenly distributing sand received the least interest. Around 50% would like to maintain the current condition and around 30% would like to reduce the amount of intervention • Cell 7 – 50% (one person) would like more even distribution of sand and the other would like to reduce the amount of intervention in sand management Which beaches need more sand? • A large proportion of respondents in all cells except cell 2 (Glenelg North) and 7 (North Haven) (however, these cells had a low response rate) think that West Beach needs more sand. • Neighbouring cells 3 and 4 both think each other's beaches need more sand • 17% to 26% of cell 1 respondents would like more sand on the beaches in their cell. A low proportion of respondents of other cells thought cell 1 needs more sand • Around 35% of respondents who most often visit cell 1, 5 and 6 think no beaches need more sand. 100% of respondents (2 people) who most often visit cell 7 (North Haven) also think no more beaches need more sand • Around 28% of respondents who most often visit cells 5 and 6 think Semaphore/South needs more sand Which beaches need less sand? • 70% of respondents who most often visit cell 3 thought that Largs Bay and/or Largs North need less sand, and Semaphore South and/or Semaphore need less sand • For all other cells, the majority of respondents who most often visit them think that no beaches need less sand • Generally, there were more respondents that considered northern beaches need less sand than respondents who considered that southern beaches need less sand

1. Why we engaged

Adelaide's coast is a much loved and visited part of our city and holds significant community, environmental and economic values. However, these values are at risk from coastal erosion and without active management we will see the build-up of sand in some areas, and the loss of sandy beaches in other areas.

1.1 What is the Adelaide Beach Management Review?

The Adelaide Beach Management Review (the review) is a 12-month project, facilitated by the Department for Environment and Water (DEW) and overseen by the Attorney-General. The review involves an independent scientific review of coastal (sand) management approaches to determine advice on feasible approaches for managing Adelaide's metropolitan beaches.

The review has been initiated in accordance with the State government's commitment to undertake a review of coastal sand management approaches for Adelaide's managed metropolitan beaches. The review will explore all approaches for sand management which will include community input and transparency of process, and consideration of climate change impact.

In accordance with the State government's commitment, the review:

- Aims to assess approaches and identify how to manage sand on Adelaide's beaches in a way that minimises disruption for communities, avoids environmental harm, and maximises sand staying on beaches. These are the goals of the review.
- Includes community engagement to ensure a clear understanding of the Adelaide community's views about sand management approaches, and about the impact of the current sand management approaches including trucking and pipelines.
- Will consider lessons from international examples of sand management of metropolitan beaches, and what can be learned from the most up to date analysis of climate science about future management of Adelaide's beaches.

1.2 Why is the review needed?

Sand naturally moves northwards along Adelaide's beaches due to prevailing wind and waves in a process called littoral drift. Sand builds up at beaches where structures interrupt the natural movement of sand northwards, including Largs Bay, Semaphore Park, the West Beach boat harbour, and Glenelg.

The natural movement of sand northwards results in several erosion hotspots along the Adelaide coastline including Semaphore South, Semaphore Park, Henley Beach, Henley Beach South, West Beach and Kingston Park/Seacliff. These areas require replenishment to ensure adequate sand buffers are maintained to protect coastal development and public infrastructure from storm damage. Maintaining Adelaide's sandy beaches currently involves active management to move sand and bring in sand from external sources. However, recent years have seen more storm events and increased erosion of beaches.

At West Beach, access and amenity has been impacted. Without intervention, these impacts will only increase with climate change.

Construction of a pipeline to move sand from Semaphore South to West Beach was previously proposed as a long term response for sand management. This initiative was halted in line with the State government's commitment to undertake a review to explore all approaches for sand management. Externally sourced sand will continue to be brought into West Beach while the review is completed.

1.3 How is the review being undertaken?

The review process is shown in the figure on the following page.

The review involves an independent scientific review supported by community and stakeholder engagement. These processes will be iterative, informing each other to support the identification of sand management approaches that are feasible and best meet environmental needs while acknowledging community expectations.

The engagement is being led by URPS (www.urps.com.au). The scientific review is being led by Bluecoast Consulting Engineers (www.bluecoastconsulting.com.au).

The review is being overseen by an Independent Advisory Panel (IAP), which will inform the review approach and examine the outcomes of each stage of the review.

The IAP attended a stakeholder workshop to observe input from stakeholders early in the review at Step 2. Community and stakeholders will also have the opportunity attend a meeting of the IAP to speak to submissions made to the review during the consultation on shortlisted approaches at Step 5.

Advisory Panel members are:

- Mark Searle, former Chief Executive Officer for the City of Marion (2000-2015)
- Kurna representatives Les Wanganeen and Sarah Smith
- Professor Beverley Clarke, social science expert from Flinders University
- Professor Emeritus Nicholas Harvey, coastal science expert from the University of Adelaide
- Professor Emeritus Michael Young, environmental science expert from the University of Adelaide.

1.4 This report

This report summarises the results of Step 2 community and stakeholder values engagement.

The report has been reviewed by the IAP (Step 2) and provided to Bluecoast to inform the shortlisting of sand management approaches (Step 3).

Appendices are compiled in a separate document – Engagement Summary Report Part B.

Review process

Step 1 - May to June 2023

Community and Stakeholder Values Engagement (URPS).

Step 2 - June 2023

IAP review Community Values Engagement Report and confirm approach for next stage of the review.

Step 3 - July to August 2023

Shortlist sand management approaches (Bluecoast).

Step 4 - August 2023

IAP review Shortlisting Report and confirm next stage of review.

Step 5 - August to October 2023

Community and stakeholder consultation on short listed sand management approaches (URPS).

Step 6 - October 2023

IAP review Shortlist Consultation Report and confirm next stage of review.
Opportunity for people to speak to their submissions at a meeting of the IAP.

Step 7 - October to December 2023

Assessment of shortlisted sand management approaches (Bluecoast)

Step 8 - December 2023

IAP review Assessment Report and confirm next stage of review

Step 9 - Early 2024

Community and stakeholders informed of the outcomes of the review and next steps

2. What we wanted to know

Step 1 of the Adelaide Beach Management Review was to undertake community and stakeholder values engagement.

This engagement presented information about the review process and asked community and stakeholders:

1. What outcomes and values are important about how sand on beaches could be managed?

How do these values relate to the goals of the review to:

- Minimise disruption for communities
- Avoid environmental harm
- Maximise sand staying on beaches?

2. Are any other sand management approaches not on the long list that should be added so that they can be included in the shortlisting process?

The review wants to ensure that all approaches for sand management are assessed. This engagement presented a long list of sand management approaches informed by community members, stakeholders and research (not a government-endorsed list of solutions) and asked community if anything else needed to be added to the list.

3. How we engaged

The engagement was undertaken from 28 April to 9 June 2023. The activities undertaken are shown in the table below.

Activity	Description
Your Say webpage	A project webpage was established on the State Government consultation YourSAY website (yoursay.sa.gov.au/abmr). The page provided information about the review process, how to have a say and a link to the online survey.
Fact sheets	Two fact sheets were prepared and available for download on the project webpage. One fact sheet presented background information about the review and its process. The other factsheet provided information about the Values and longlist engagement, how to have a say and present the longlist. (Part B Appendix A)
Beach posters	Posters were established along the foreshore path between Kingston Park and North Haven. The posters directed people to the project webpage to learn more and have a say. (Part B Appendix A)
Postcard	Postcards were distributed to all properties between Military Road and the coast between Kingston Park and North Haven in the first week of the engagement period. The postcards directed people to the project webpage to learn more and have a say. (Part B Appendix A)
Press ad	An advertisement was placed in the Advertiser newspaper on 27 May and 3 June 2023. (Part B Appendix A)
Email	An email was sent through the YourSAY newsletter on 15 May 2023 and DEW 'OurCoast' e-newsletter on 28 April and 5 June. The email directed people to the project webpage to learn more and have their say.
Survey	An online survey (Part B Appendix B) was established on the project YourSAY webpage for people to provide their input into the engagement. The survey was completed by 601 people.
Stakeholder workshop	A workshop was held with representatives of Councils, dune and community groups, resident and business associations, peak bodies and Kaurana. The workshop was held from 6-9pm on Monday 15 May 2023 at Club West Lakes. The workshop was facilitated by URPS and included activities to gather input as well as presentations from review staff and Bluecoast.
Submissions	People were able to email written submissions to in addition to (or instead) of completing the survey mail@urps.com.au .

3.1 Consultation design and analysis assumptions

Please note the following characteristics and assumptions of the engagement design and analysis when reading and interpreting the results in this report.

3.1.1 Consultation not research

The survey was designed as a consultation exercise where anyone had the opportunity to choose to participate. It was not designed as a research survey in which a statistically representative sample of people are chosen to participate. For the review it was important that anyone interested in or impacted by coastal management had the opportunity to participate in the survey. The results are representative of the views of those who participated and not necessarily of the views of the wider population.

3.1.2 Analysis by management cell

Section 4.5 of the report includes further analysis undertaken to look at how responses to survey questions differed depending on the section of coast respondents selected that they most often visit. When reading and interpreting the results in section 4.5 it is important to note that survey questions did not ask respondents to answer for the beach they visit most often. Questions were asked generally about the coast. As such respondents may or may not have been answering questions with their most frequently visited section of the coast in mind.

The sections of the coast respondents visit most were consolidated into management cells based on current sand management and environment characteristics. Management cells were of varying geographic size and had varying levels of responses.

3.1.3 Theming of comments

The comments in written submissions and free text responses in the survey have been coded into different themes to provide quantitative understanding of the types of topics raised in qualitative feedback.

Coding was subjective and dependent on the interpretation of the comment by the person reviewing it. One person coded the survey comments, and another coded the submissions. They conferred regularly to as best as possible code comments consistently.

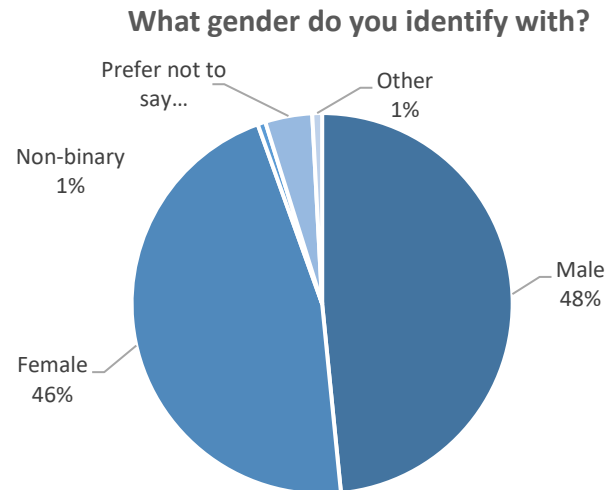
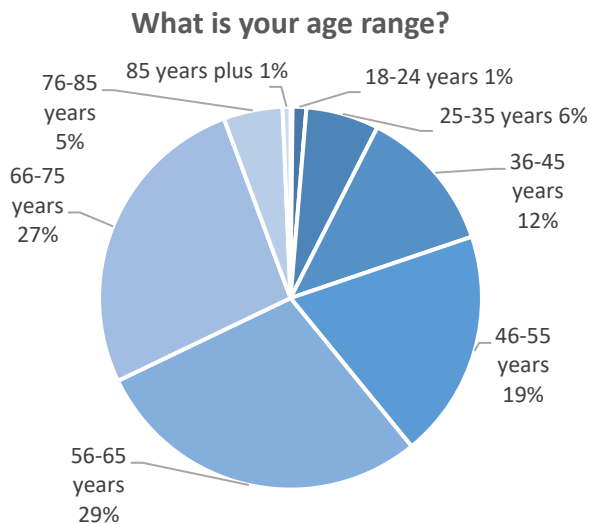
4. What we heard - Online survey

601 people responded to the survey.

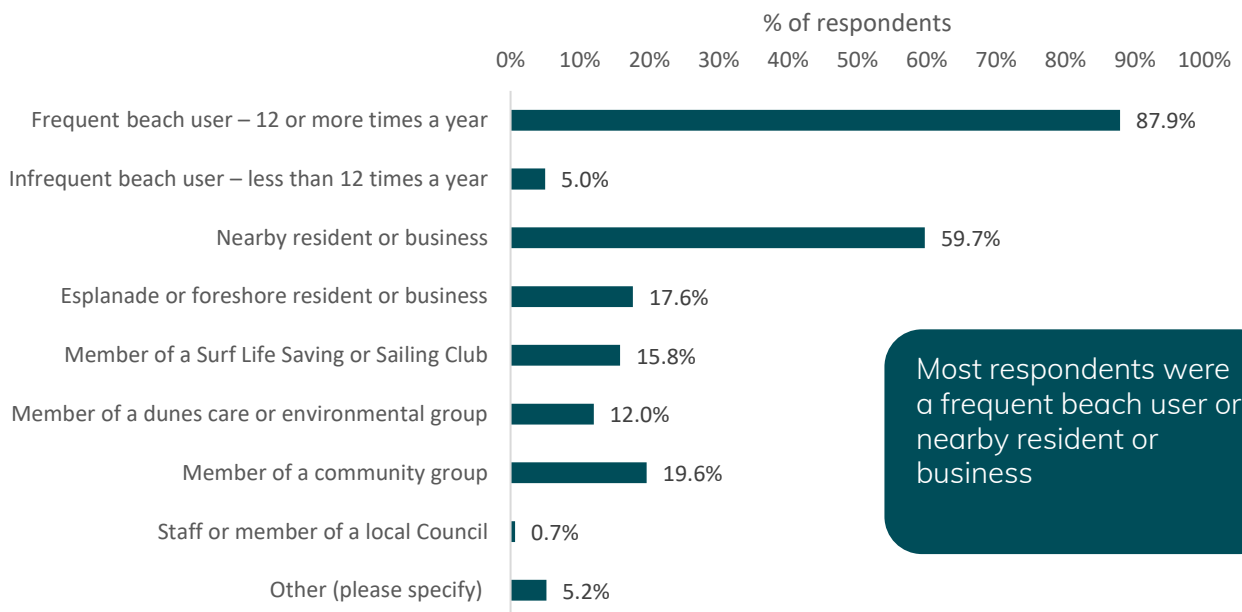
75% of respondents were aged between 46 and 75 years

A fairly equal proportion of males and females responded to the survey

4.1 Who responded?



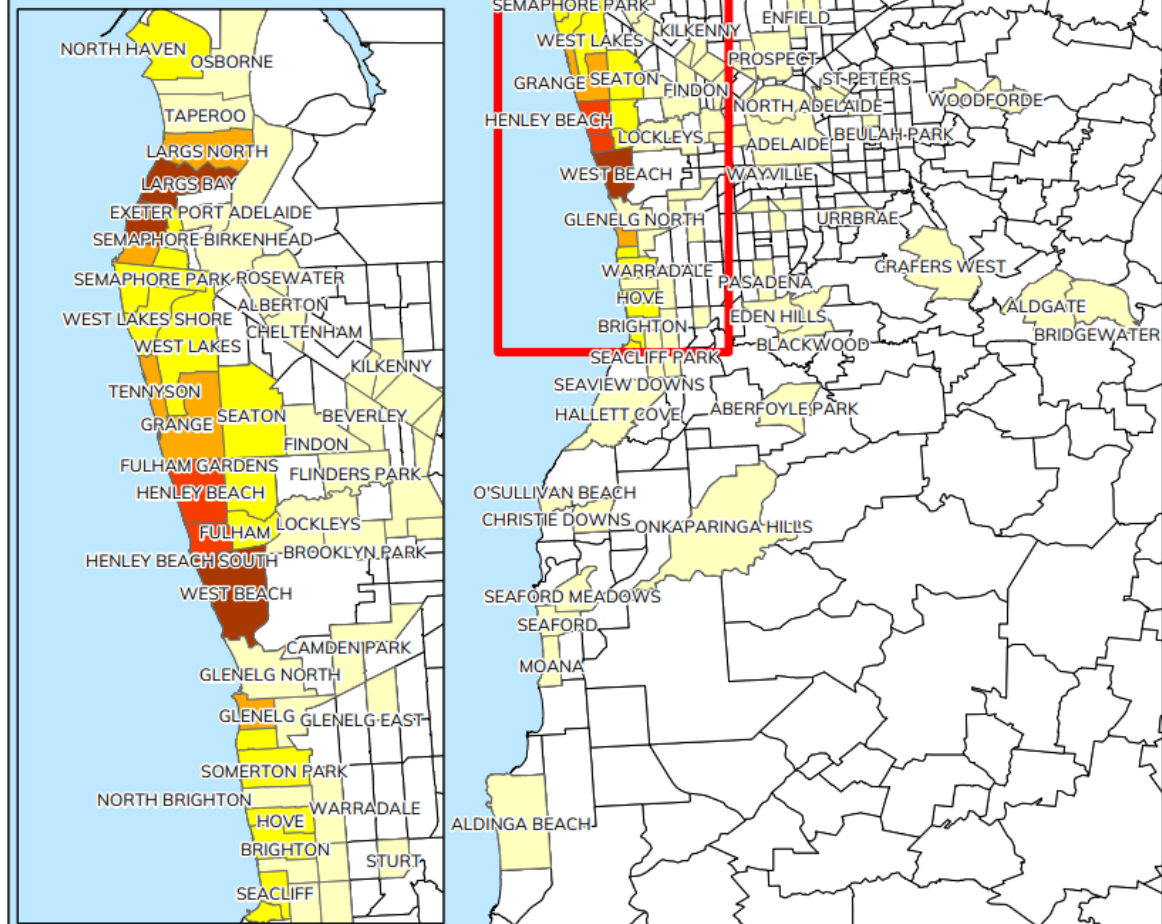
Which statements best describe your relationship with the coast between Largs Bay and Kingston Park? (tick all that apply)



Most respondents were a frequent beach user or nearby resident or business

Most respondents reside in

- Semaphore (14%)
- West Beach (13%)
- Largs Bay (11%)
- Henley Beach (7%)
- Henley Beach South (7%)
- Grange (6%)



Adelaide Beach Management Review - Residential Location of Survey Respondents

4.2 What beaches are visited by respondents and why?

All the questions analysed in this section of the report were required to be answered and were answered by all 601 respondents.

4.2.1 What sections of the coast are visited most?

This question allowed for multiple selections to be made.

The sections of the coastline visited most by respondents in the last 2 years were:

- Henley Beach/Henley Beach South (84%)
- Grange and West Beach (79%)
- Semaphore/Semaphore South (76%)
- Glenelg/Glenelg North (75%)



Beaches Visited in the Last Two Years

% Survey respondents

- 50% or less
- >50% to 60%
- >60% to 70%
- >70% to 80%
- >80%

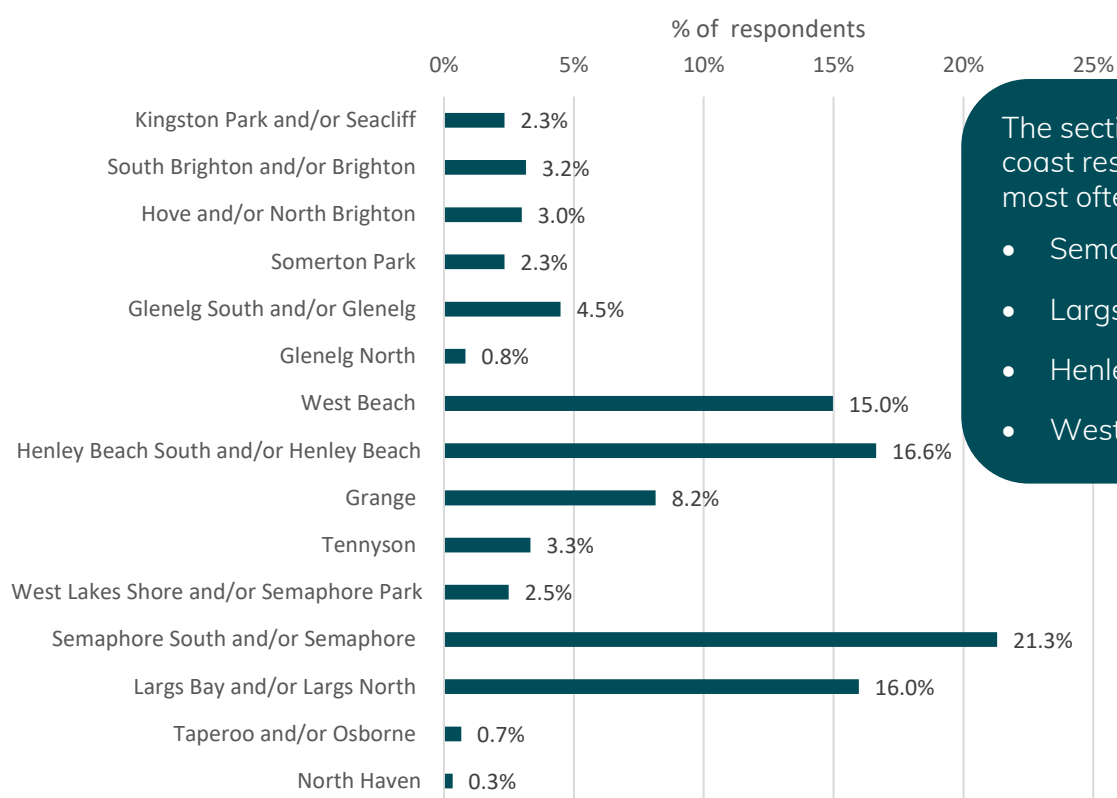
Total number of survey respondents = 601



0 2.5 5 Kms

Section of the coast between Largs Bay and Kingston Park respondents visit most often

This question only allowed a single selection.



The sections of the coast respondents visit most often were:

- Semaphore/South
- Largs Bay/ North
- Henley Beach/South
- West Beach

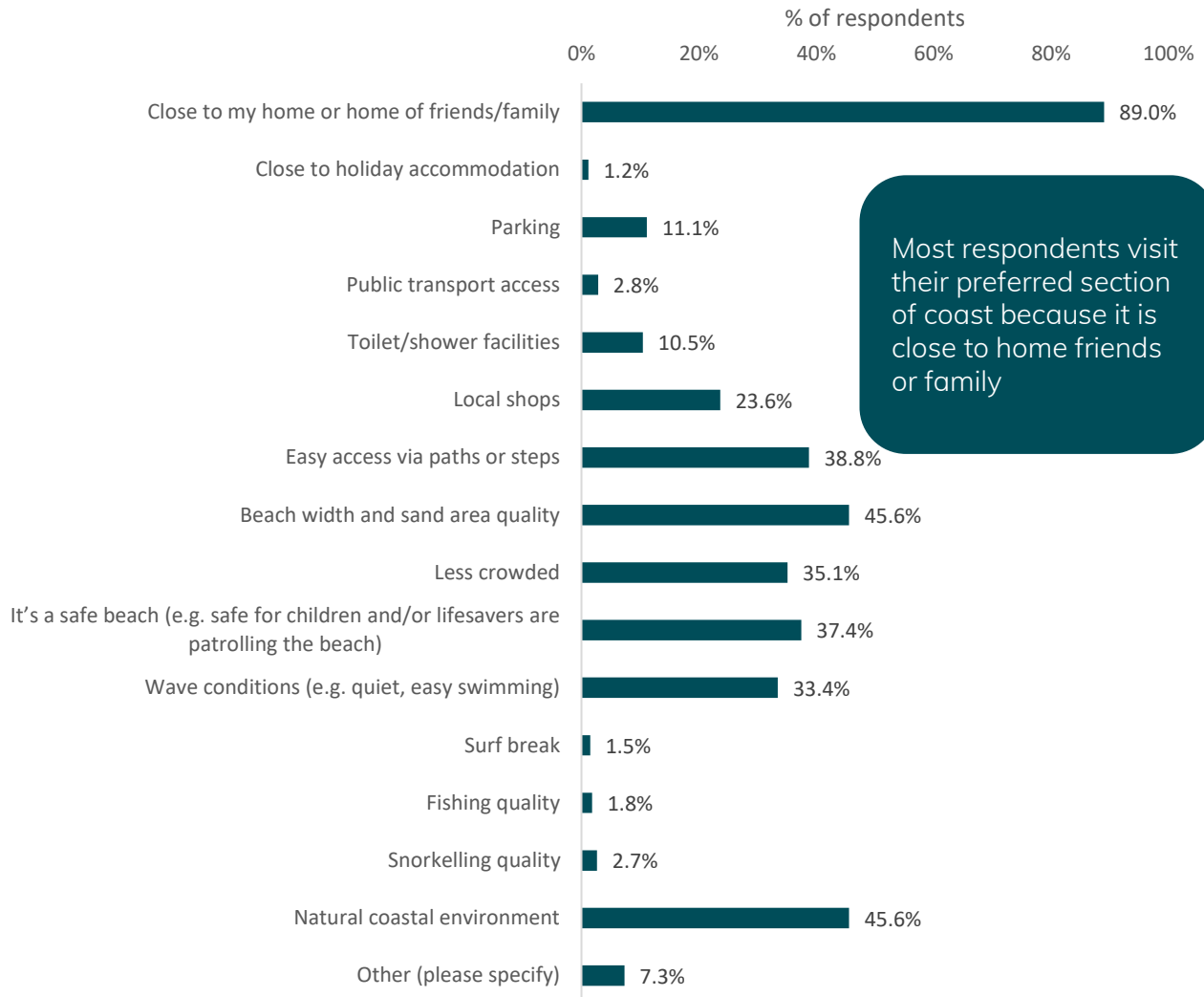
4.2.2 Why respondents visit particular sections of the coast over others?

Respondents were asked to select reasons they visit their preferred section of the coast over others. The most popular reason selected was because it was close to home/friends/family (89%). Many other reasons were important to 33%-46% of respondents including wave conditions, safe beach, easy access via paths or steps, less crowded, and beach width and sand area quality.

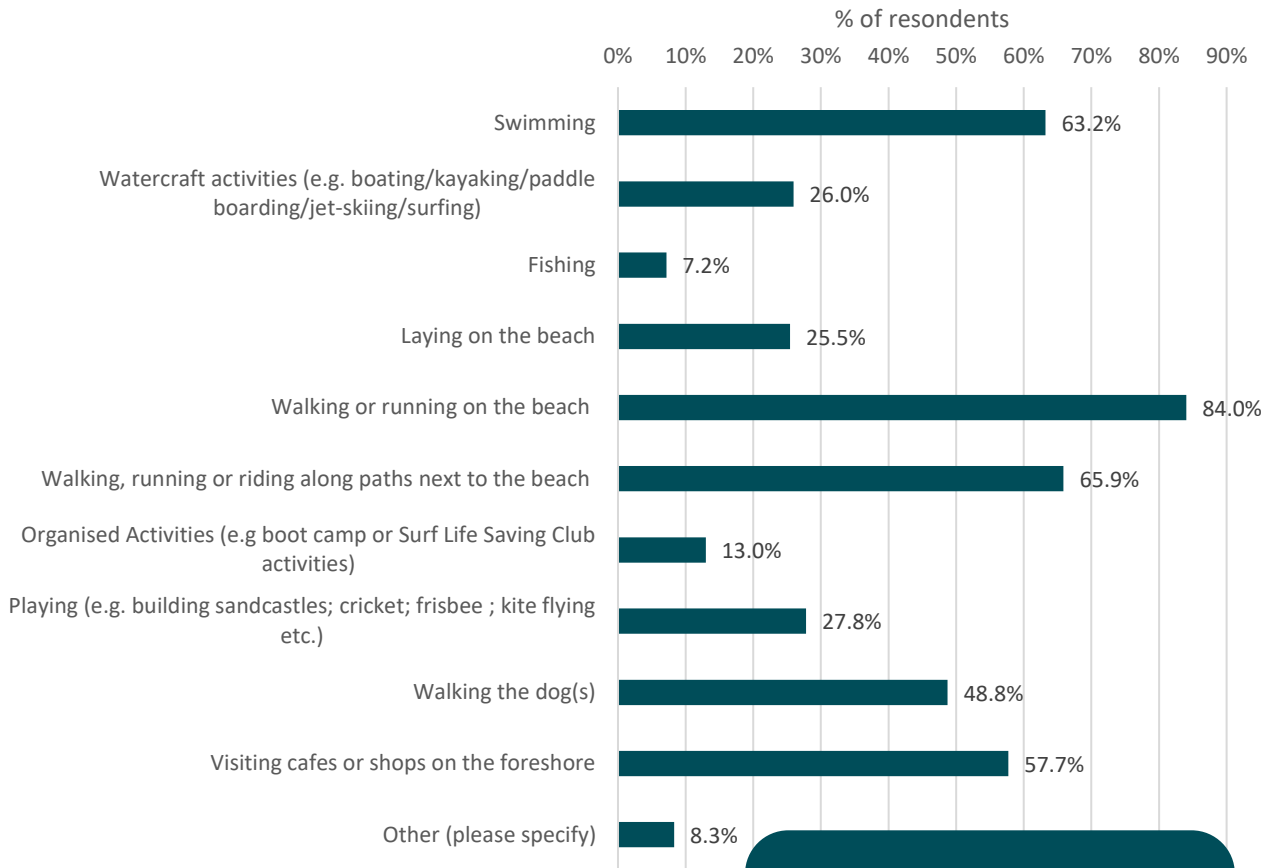
Respondents were also asked to select activities they usually visit their preferred section of the coast to do. The most popular activities selected were:

- Walking or running on the beach (84%)
- Walking running or riding on paths next to the beach (66%)
- Swimming (63%)
- Visiting cafes or shops on the foreshore (58%)
- Walking the dog(s) (49%).

Reasons respondents visit the section of the coast they do most over others



What respondents usually visit the coast to do (choose all that apply)



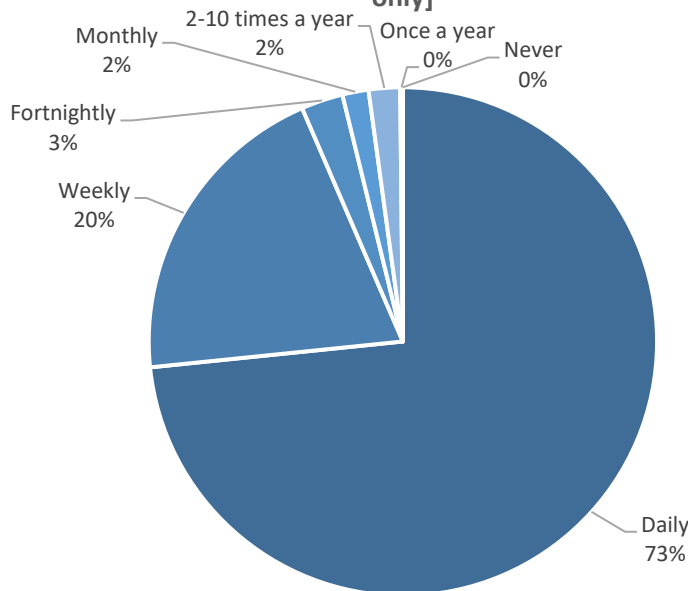
Most respondents visit the coast to walk or run on the beach or paths, swim, visit cafés and shops, or walk the dog

4.2.3 How often do respondents visit the coast?

Respondents were asked to select how often they visit the coast during warmer and cooler months.

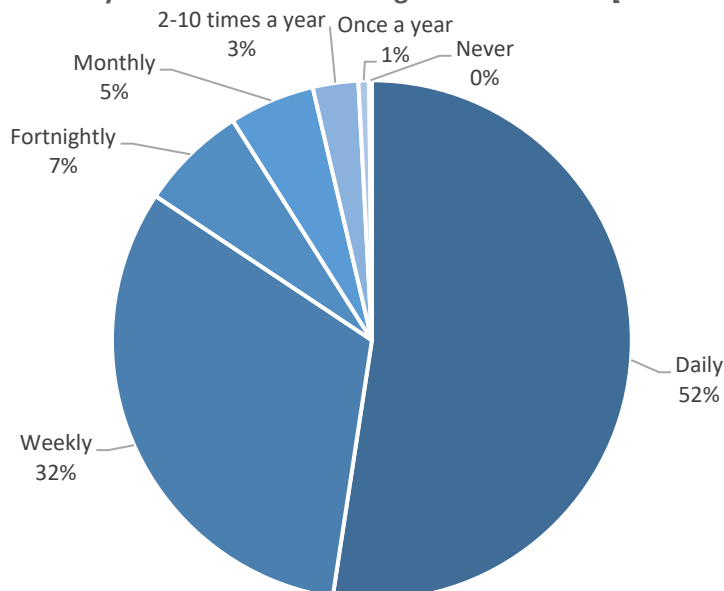
In warmer months 73% of respondents visit the coast daily and 20% weekly. In the cooler months 52% respondents visit the coast daily and 32% weekly.

How often do you visit the coast during warmer months? [select one only]



Coast visitation by respondents is more frequent in warmer months. However, half still use the beach daily in cooler months

How often do you visit the coast during cooler months? [select one only]



4.3 What do the goals of the review mean to respondents?

The survey asked respondents a series of questions to understand what each of goals of the review mean to them in relation to sand management.

The goals of the review are to:

- Minimise disruption to communities
- Avoid environmental harm
- Maximise sand staying on beaches.

4.3.1 What types of sand management activities are disruptive to you?

Respondents were asked to rank a list of sand management activities, equipment and infrastructure, from (1) most disruptive to (6) least disruptive. This question was required to be answered and was answered by all 601 respondents.

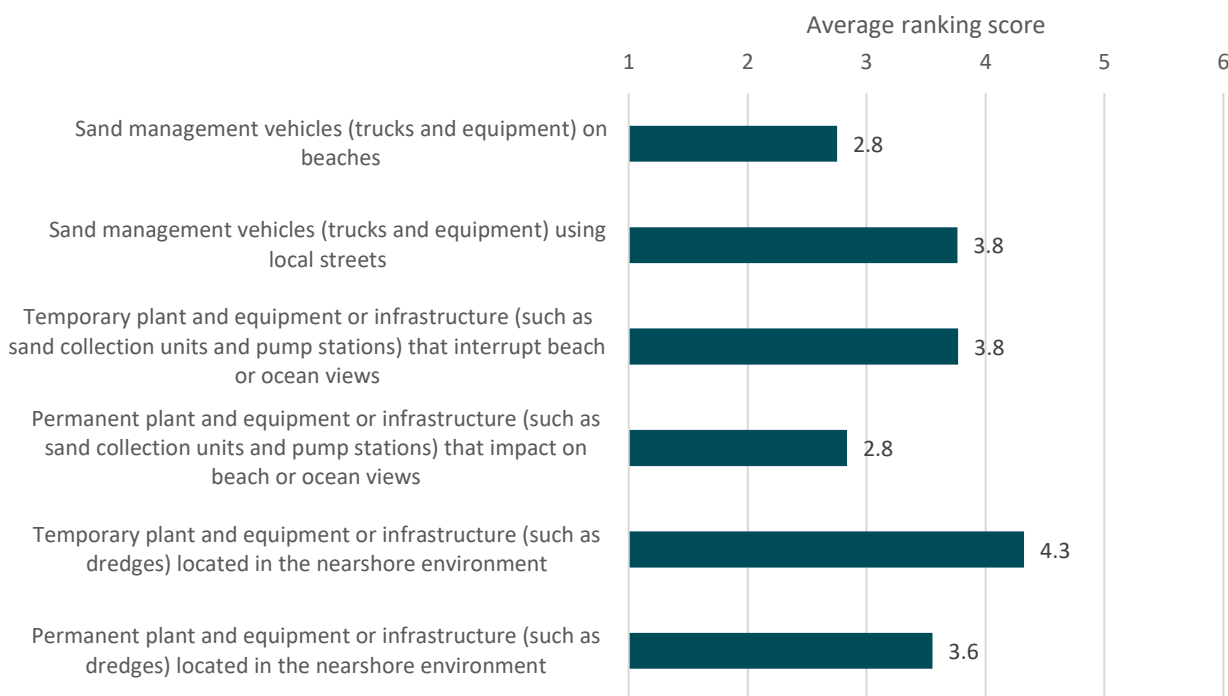
The activities ranked as most disruptive (lowest average ranked score) were:

- Sand management vehicles (trucks and equipment) on beaches (2.8)
- Permanent plant or equipment that impacts on views (2.8)

The activity that ranked as least disruptive (highest average ranked score) was:

- Temporary plant and equipment or infrastructure that interrupt views (4.3)

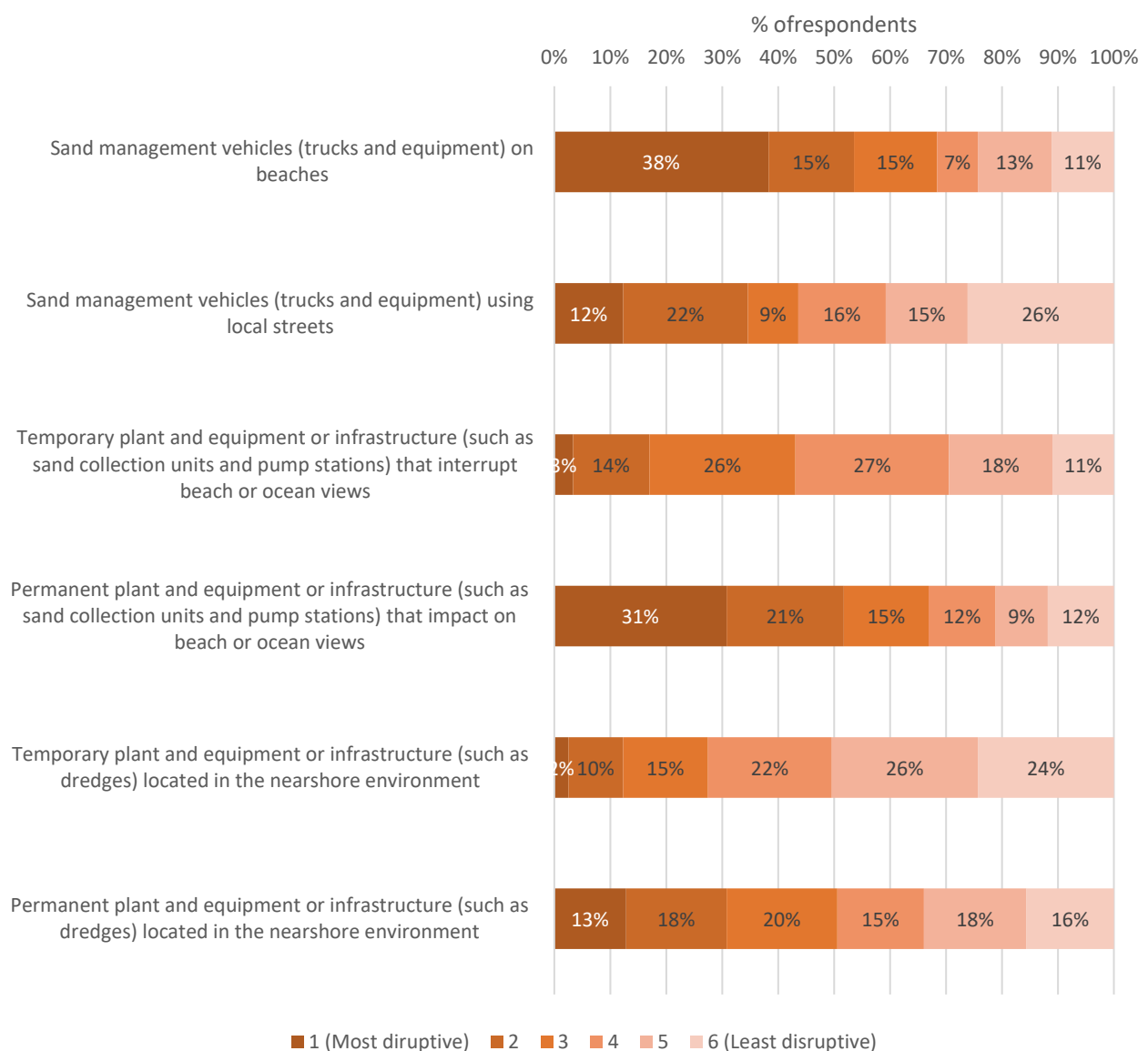
Average ranked score for types of disruption (the lower the score the more disruptive)



Although sand management vehicles on beaches and permanent plant or equipment that impacts on views received the same average rank, looking at the order in which respondents ranked the activities, a larger proportion (38%) ranked vehicles on beaches at 1, the most disruptive activity, compared to permanent plant or equipment that impacts views (31%).

The order in which respondents ranked also shows some disparity in views on permanent equipment in the nearshore environment and vehicles on local roads. A third of respondents ranked permanent equipment in the nearshore environment as least disruptive (5 or 6) but another third ranked it as most disruptive (1 or 2). Similarly, trucks on local roads was ranked as least disruptive (ranked 5 or 6) by 41% of respondents but another 34% ranked it as most disruptive (ranked 1 or 2).

Order of ranking of types of disruption (1 is most disruptive)

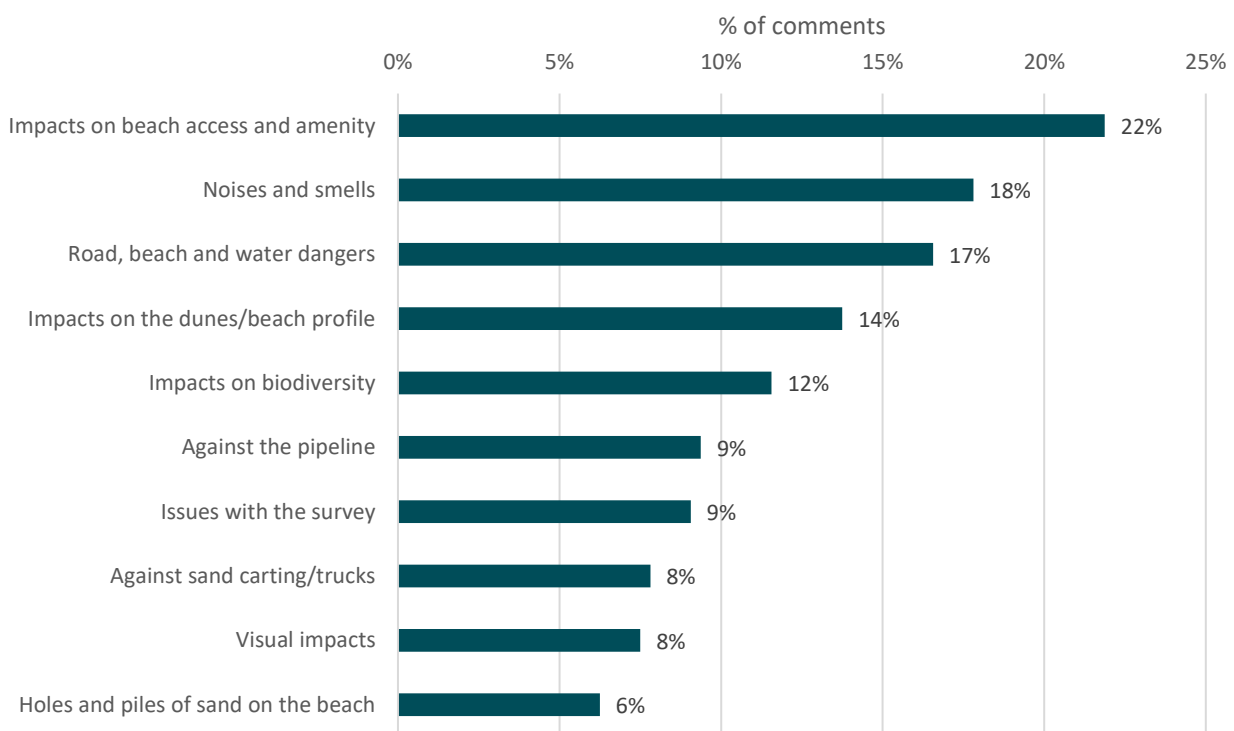


Respondents were provided the opportunity to write a comment in response to the question, 'are there any other disruptive activities the review should consider?'.

320 survey respondents provided a comment. Comments were coded into themes to provide an indication of the most commonly raised topics. Please note, one comment could have been coded across multiple themes. Verbatim comments are provided in Part B Appendix C.

The top 10 themes raised in comments are shown in the graph below. The top 5 themes are then described in the paragraphs below, with example quotes provided. The number of comments for all themes is provided in Part B Appendix D.

**Themes of comments - other disruptive activities the review should consider
(320 comments)**



Impacts on beach access and amenity was the most commonly raised theme, with 22% of comments reflecting this as a concern. This theme related to the way sand management activities impacts the way people can access the beach or enjoy their usual beach activities.

Example quotes include:

- Sand harvesting impacts normal recreational activities using the beach such as walking
- Effects access to the beach. Cliffs in sand caused by trucking make sand impossible to climb
- Rutted tyre tracks making beach walking difficult especially for people with disabilities
- Removal of so much sand that existing beaches become unusable
- Currently, at Henley South you can't access the beach at all in some locations because of lack of sand.

Noises and smells was the second most commonly raised theme and was reflected in 18% of comments. The noise impacts to residents and beach users from current and possible future sand management activities was seen as very disruptive by many survey respondents, with significant impacts on beach amenity. Fumes and odours from trucks, equipment and the mined sand were also considered undesirable.

Example quotes include:

- *There would also be extreme annoyance with unacceptable noise caused by the processing trommel*
- *Noisy equipment belching black smoke*
- *You mention interrupting views but not noise levels which could be associated with plant and equipment. Noise can be very disruptive so this needs to be considered*
- *All these activities involve noise which affects residents, beach goers and wildlife*
- *Aftermath of sand mining leaves the beach with holes, and nasty black smelling beach surface.*

Concerns about **road, beach and water dangers** was the third most commonly raised concern and reflected in 17% of comments. This usually related to sand carting trucks travelling at high speeds along the beach, the ruts their tyres leave behind, and the soft sand they place on the beach at their destination. Several people also noted the danger of groynes for swimmers. Many respondents were eager to see a safer sand management activity implemented.

Examples quotes include:

- *Safety issues when plant and equipment are on beaches*
- *The danger that the trucks pose to beach users*
- *Danger to pets and children as plant is running, not only when the equipment is running, but the terrible ruts that these monster trucks leave behind*
- *The risk of personal injury to people walking or exercising on the beach from sand disruption*
- *The truck drivers are dangerous pulling out onto roads without care for traffic*
- *Risk to swimmers from in water infrastructure such as groynes*
- *Dangerous soft sand areas around jetties creating sink holes.*

Impacts on the profile of sand dunes and the beach was raised in 14% of comments. Many note the impact of sand mining on the beach profile and dune system, which erodes the dunes and minimises their value to the environment, community and infrastructure.

Example quotes include:

- *Activities that destroy dunes, foredunes*
- *Removal of so much sand that existing beaches become unusable and damages dunes*
- *Yes, the erosion of both beach and dunes from excavation of large amounts of sand*

- Recent experiences of sand mismanagement at Semaphore Largs has led to significant coastal damage with scouring and collapse of the foredune.
- The construction of sand pipelines from northern beaches and the sand collection units at Semaphore will damage and/or destroy established dunes from Semaphore to Tennyson
- Any digging, driving through or disrupting our fragile dunes system
- The loss of sand from the beaches has an impact on the dunes as the tides are coming in further and undermining the dunes making them more unstable.

Impacts on biodiversity was raised in 12% of comments. Respondents were concerned about potential impacts on dune, beach, ocean and seafloor flora and fauna through habitat destruction or disruption, direct animal casualties, pollution, noise, light and other impacts.

Example quotes include:

- *Maintain the integrity of the local unique last in Australia ecosystem*
- *Sand removal from sea that damage undersea plant life and creatures*
- *Avoiding activities that stir up the sea bed or effect seagrass beds*
- *Destroying dunes, natural habitats, beaches, loss of wildlife birds and native plants.*
- *Environmental impact to native vegetation on and off shore -specifically their lifecycle, propagation and disruption of reproduction process to dune animals and sea life*
- *Digging up established dune plants which have been painstakingly planted and tended for years.*

4.3.2 What examples of environmental protection are most important to you?

Respondents were asked to rank a list of examples of environmental protection from (1) most important to (8) least important. This question was required to be answered and was answered by all 601 respondents.

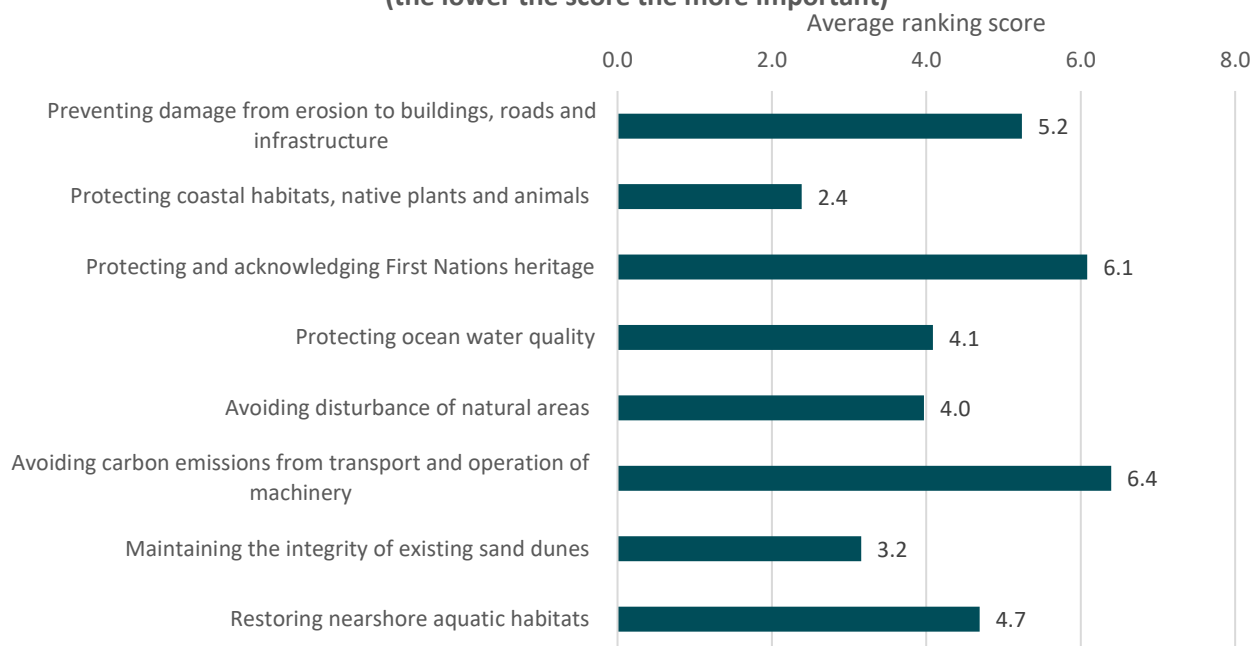
The examples of environmental protection that ranked most important (lowest average ranked score) were:

- Protecting coastal habitats, native plants and animals (2.4)
- Maintaining the integrity of existing sand dunes (3.2).

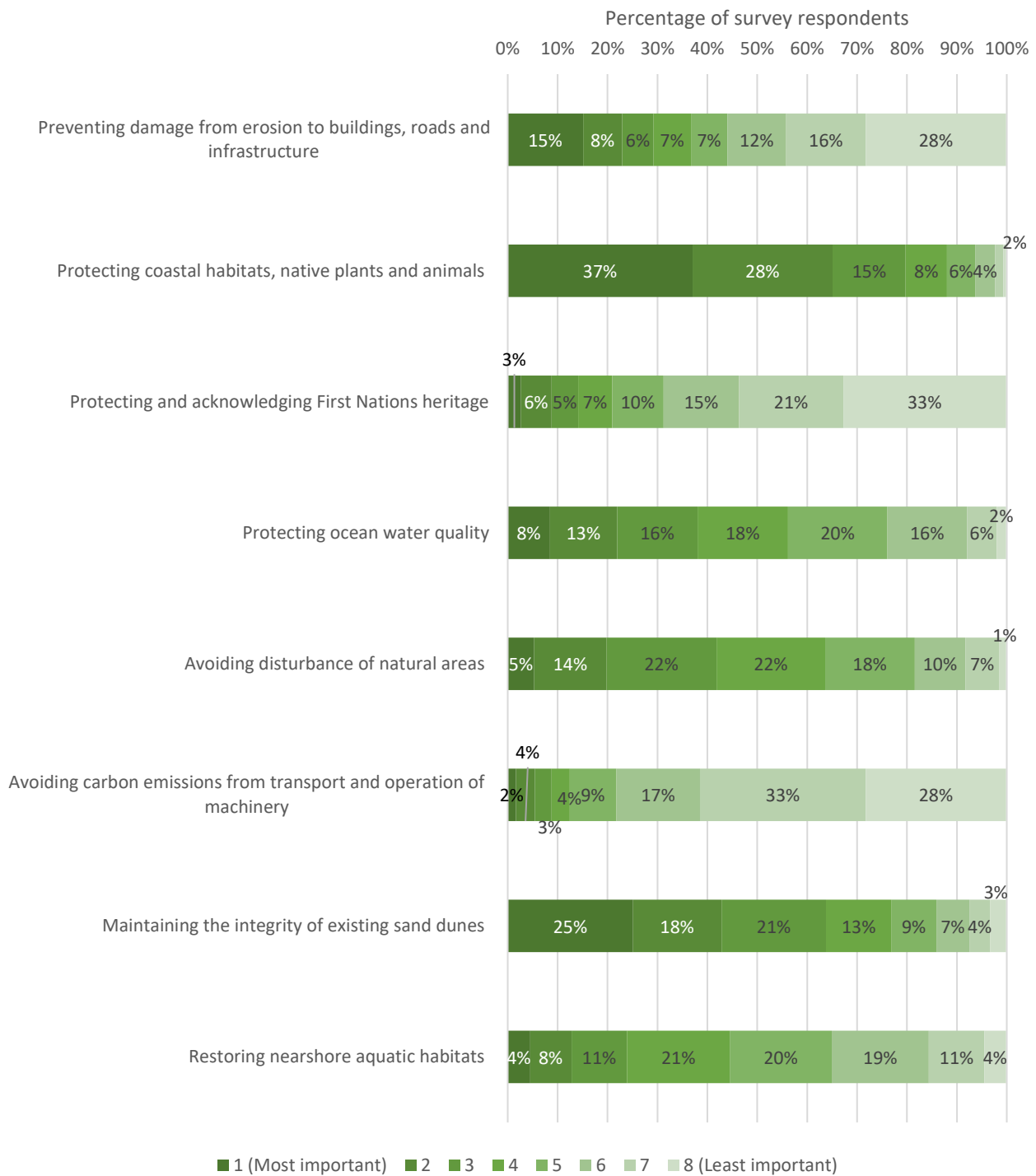
The examples of environmental protection that ranked least important (highest average ranked score) were:

- Avoiding carbon emissions from transport and operation of machinery (6.4)
- Protecting and acknowledging First Nations heritage (6.1).

**Average ranked score for examples of environmental protection
(the lower the score the more important)**



**% of respondents and order of ranking of examples of environmental protection
(1 is most important)**

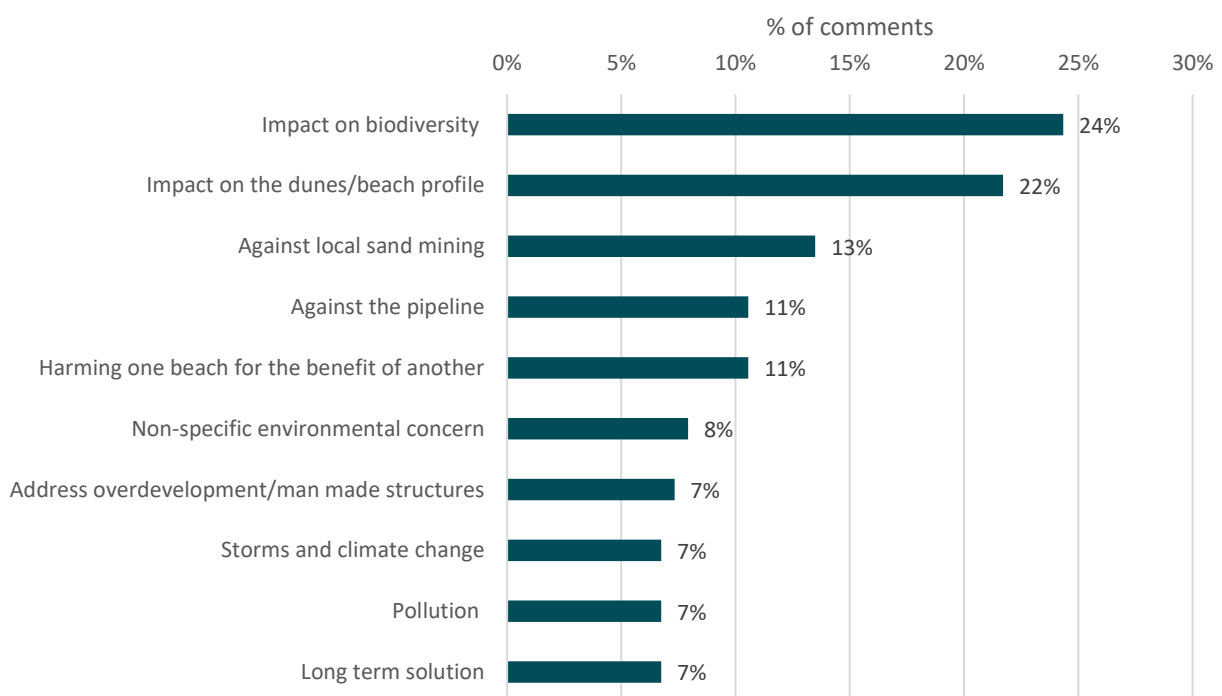


Respondents were provided the opportunity to write a comment in response to the question, 'in terms of sourcing or moving sand, do you have any other feedback about what 'avoiding environmental harm' means to you?'.

341 survey respondents provided a comment. Comments were coded into common themes to provide an indication of the most commonly raised topics. Please note, one comment could have been coded across multiple themes. Verbatim comments are provided in Part B Appendix C.

The top 10 themes raised in comments are shown in the graph below. The top 5 themes are then described in the paragraphs below, with example quotes provided. The number of comments for all themes is provided in Part B Appendix D.

Themes of comments - other feedback about what 'avoiding environmental harm' means (341 comments)



Impacts on biodiversity was the most commonly raised theme with 24% of comments reflecting this concern. Respondents were concerned about potential impacts on dune, beach, ocean and seafloor flora and fauna through habitat destruction or disruption, direct animal casualties, pollution, noise, light and other impacts.

Example quotes include:

- *If sourcing sand from quarries, this is a limited resource that may damage native vegetation.*
- *It means not ripping up the beach in the first place, destroying intertidal habitat (tube worms etc) rather than restoring it afterwards*

- Protecting wildlife habitat
- Sand settles itself so that it is impacted. All kinds of critters have their homes in the damp sand. Shells, corals, sea lettuce, jellyfish. so that they and their homes are destroyed in the carting.
- Priority needs to be given to protecting dune systems on northern beaches they house native fauna and flora.
- It also means reducing the noise associated with sand relocation as this has an effect of the native wildlife especially during breeding season
- basically, not destroying delicate dune systems by removal of sand causing erosion and conserving important breeding and feeding areas for birds etc.
- Preventing excessive sediment in the water, smothering of seagrass meadows.

Impact on the beach profile and dune system was the second most commonly raised theme and reflected in 22% of comments. Comments raised concern about sand mining eroding dunes and reducing the value the dunes provide the environment, community and infrastructure.

Example quotes include:

- Not touching the dunes means you have placed First Nations heritage, protecting coastal habitats, and maintaining dune integrity
- Removing sand from between Semaphore and Largs Jetty results in the beach being lower, therefore allowing higher energy during storms hitting the existing dune bases and causing rapid regression and loss
- Avoiding damage to our existing dunes and beaches
- Any intervention that effects the dunes or seabed would create harm to the environment
- Minimise damage to existing dunes, whilst ensuring beach profile is maintained
- The sand dunes have slowly regenerated over the last decade and have shown that they stop erosion and protect the degradation of the coastal environment. The damage to this environment due to the mining of the sand is evident after several storms.

13% of responses expressed **opposition to sand mining** from the Adelaide metropolitan beaches in any form. These comments were not specific to a particular sand mining approach, such as sand carting trucks or a pipeline. Rather, they opposed any local sand mining due to impacts on the environment, community and economy.

Example quotes include:

- Avoiding environmental harm means not mining sand from semaphore beaches and no pipeline
- Don't move any sand.
- Any system that needs serial removal of sand from one place and placement in another is very detrimental and best avoided

- We have known for decades that moving sand is a flawed option. We are losing sand from all of Adelaide's beaches, and so taking from one area and moving to another is not sustainable
- Avoiding environmental harm is acknowledging that sand-mining is destroying the Northern beaches and is not saving West Beach.

11% of respondents commented that they **do not support using a pipeline** at this part of the coast. They expressed concern about the noise, impact on dunes and beach access during construction, microplastics, inefficiency and ineffectiveness, visual impacts and costs. Comments expressed that despite the efficiency of pipelines for other metropolitan Adelaide beaches, that the approach is not suitable for the local conditions due to sand grain size and the volumes of sand to be transported.

Example quotes include:

- It means you do not disrupt and dig up 10,000sqm of remnant dunes for an oversized over depth pipe simply because it is the easiest solution
- If a pipeline were chosen, the millions of microscopic particles from the inside of the pipeline, once made into a slurry will then be dumped on West Beach/ Henley beach and consequently washed into the ocean
- Building a sand pipeline is most likely sand management option to cause environmental harm to this area
- Sand mining by pipeline or by trucking is unscientific and uneconomic and damages the environment
- The effect of building an expensive and environmentally damaging sand pipeline and then taking sand from Semaphore will not only fail to adequately protect the infrastructure of West Beach in the short term (due to proposed volume and grain size) but in the longer term will threaten Semaphore and other metropolitan beaches' infrastructure.

11% of respondents commented that they opposed **causing harm to one beach for the benefit of another beach**. Comments stated that it was unfair, pitted communities against each other, increased impacts to a greater number of residents and beach users, and was futile due to the inability of current sand management systems to fix issues at the destination beaches.

Example comments include:

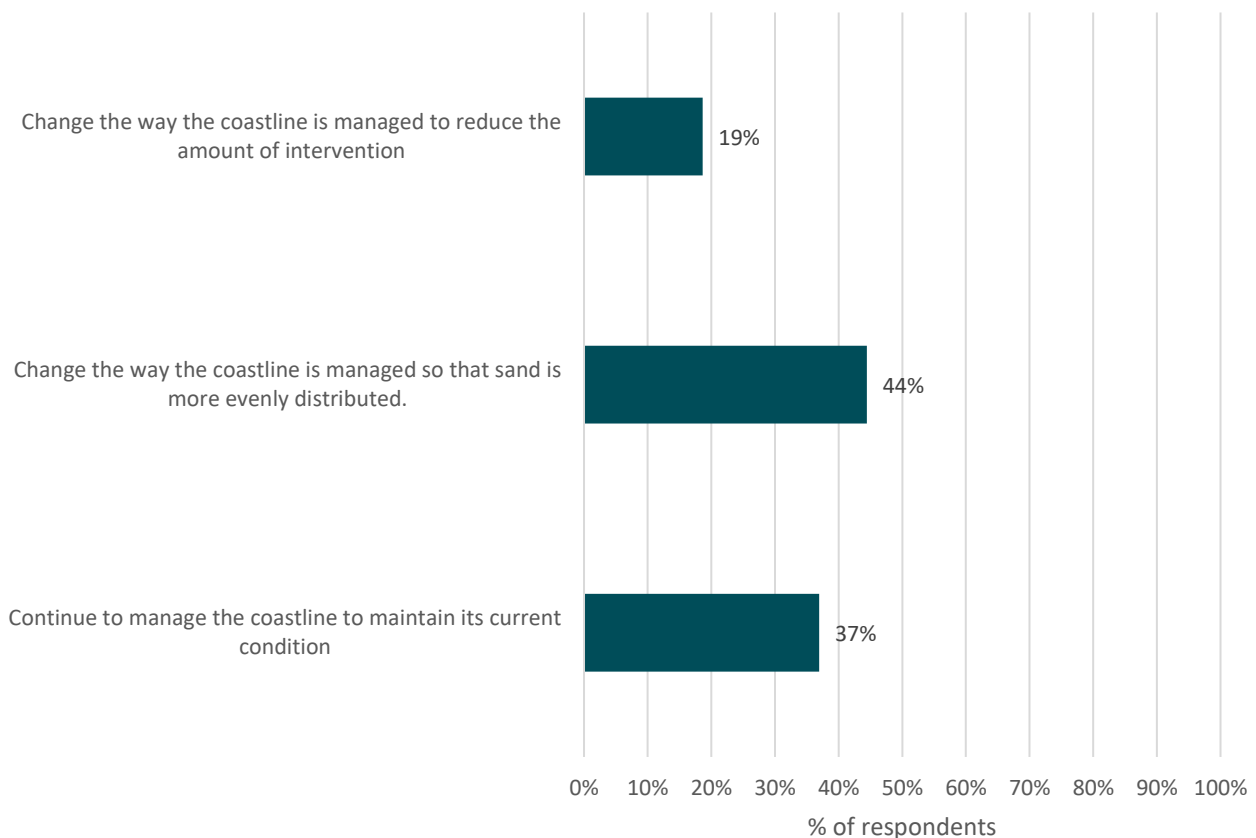
- I don't understand why you would want to cause massive environmental damage, and disrupt beach access and enjoyment at 2 popular urban beaches (Semaphore and Largs Bay) - causing devastating social, environmental and economical impacts at these beaches - in an attempt to restore another urban beach, when there are other alternatives
- Don't take sand from metropolitan beaches to prop up other beaches
- Destroying yet another beach system (Semaphore to Outer Harbour) to provide temporary sand at West Beach only perpetuates the problem
- Destroying one beach to "save another is NOT acceptable.

4.3.3 What sand management outcome do you want for the coastline?

Respondents were presented with three different sand management scenarios or outcomes and asked to choose the one which was most acceptable to them. This question was required to be answered and was answered by all 601 respondents.

44% of respondents would like to change the way sand is managed so that it is more evenly distributed. 37% would like to continue to manage it to maintain its current position. 19% would like to reduce the amount of intervention in coast management.

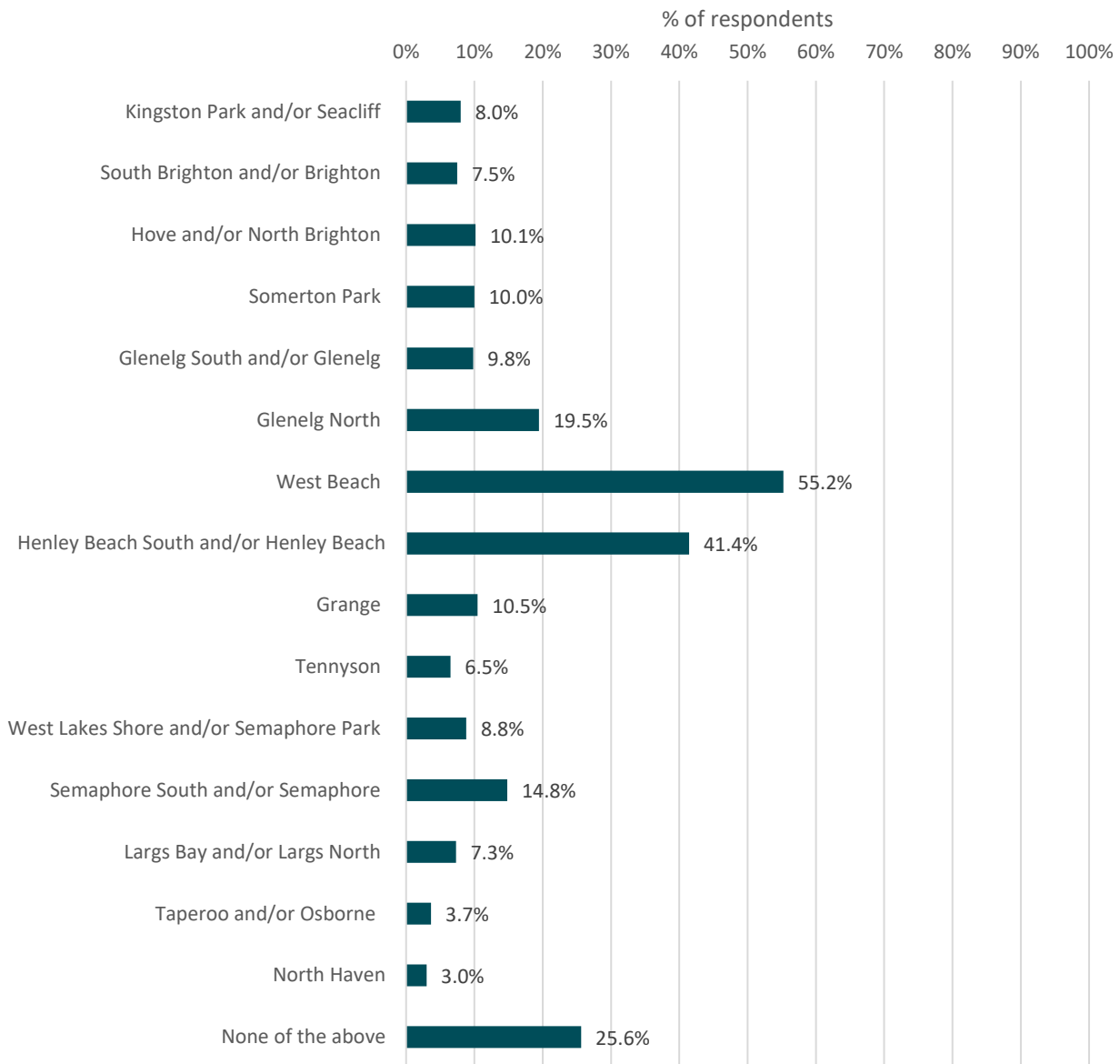
Most acceptable sand management outcome (choose one only)



Respondents were asked if there were sections of the coast where they think more sand is needed than currently exists. Respondents could select as many beaches as they like. This question was required to be answered and was answered by all 601 respondents.

The sections of the coast at which most respondents feel more sand is needed were West Beach (55%) and Henley Beach or Henley Beach South (41%). A quarter of respondents think no beaches need more sand.

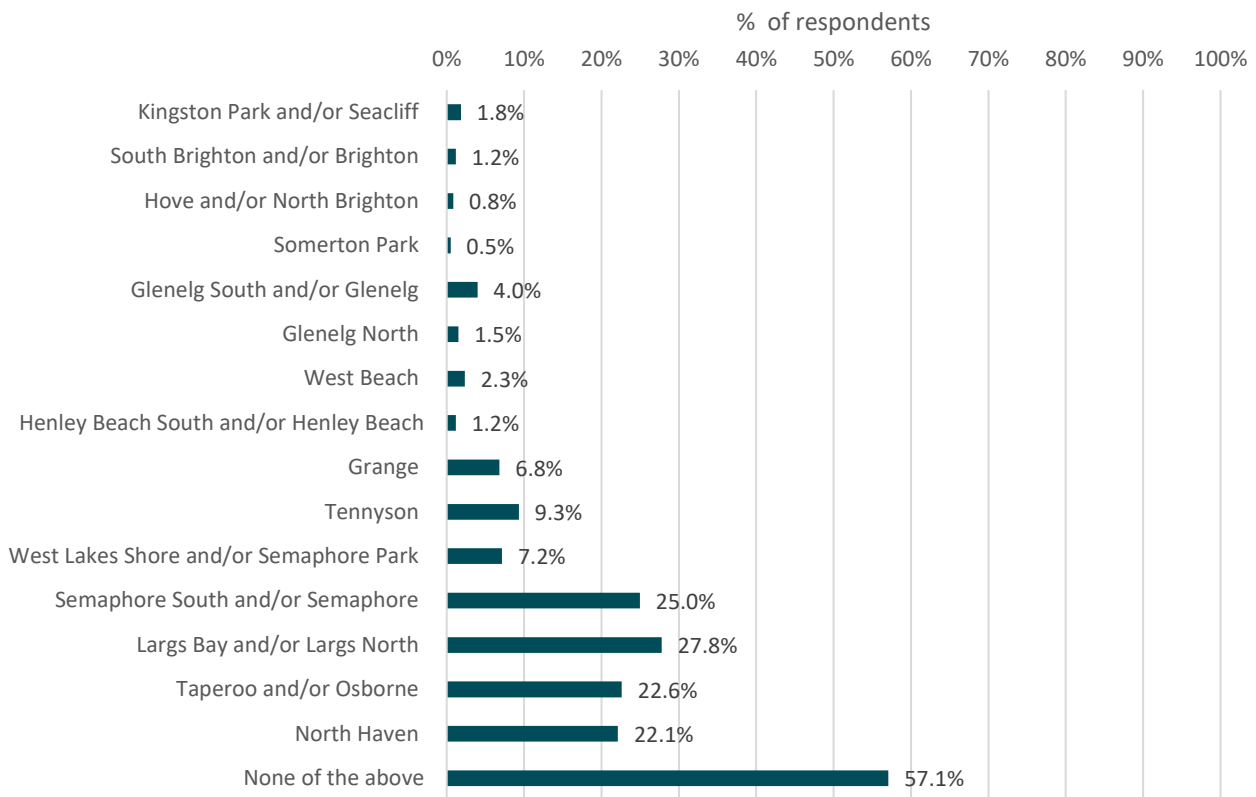
Sections of the coast where respondents think more sand is needed than currently exists (choose all that apply)



Respondents were asked if there were sections of the coast where they think less sand is needed than currently exists. Respondents could select as many beaches as they like. This question was required to be answered and was answered by all 601 respondents.

57% of respondents think no sections of the coast need less sand. Between 22% and 28% of respondents think the sections of coast between North Haven and Semaphore South/Semaphore need less sand.

Sections of the coast where respondents think less sand is needed than currently exists?

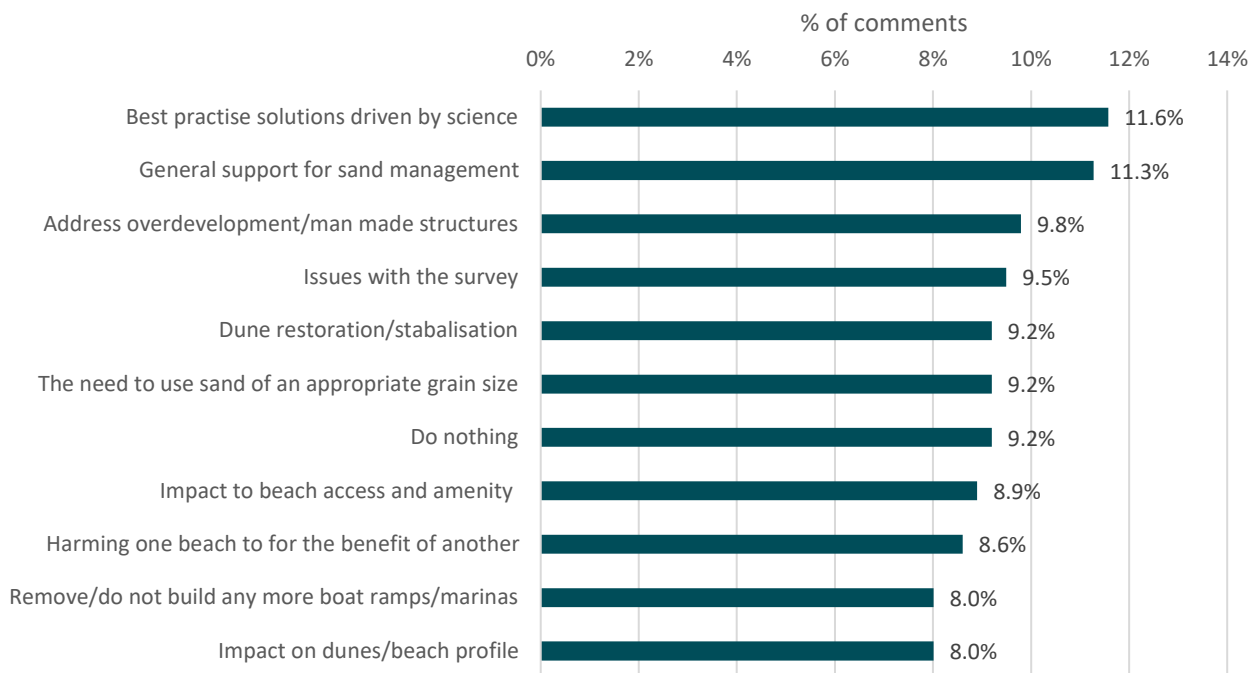


Respondents were provided the opportunity to write a comment in response to the question, 'do you have any other feedback about what 'maximise sand staying on beaches' means to you?'.

337 respondents provided a comment. Comments were coded into common themes to provide an indication of the most raised topics. Please note, one comment could have been coded across multiple themes. Verbatim comments are provided in Part B Appendix C.

The top 10 themes raised in comments are shown in the graph below. The distribution of comments was fairly even across the themes. As such, the top 7 themes have been described in the paragraphs below, with example quotes provided. The number of comments for all themes is provided in Part B Appendix D.

Themes of comments - other feedback about what 'maximise sand staying on beaches' means (337 comments)



Best practise solutions driven by science was the most commonly raised theme reflected in 12% of comments. Respondents encouraged looking towards overseas case studies to learn, and to listen to experts rather than the community or politicians. Respondents also want to see studies and monitoring to be undertaken to ensure that the issue and the impact of any sand management is well understood and communicated.

Example quotes include:

- *There should be routine monitoring / recording of sand levels of each of the above beaches to provide a historical record.*
- *A proper assessment by qualified people is what is required and looking at world standard operations*
- *Proper scientific research both local and international should be used before selecting a strategy of intervention*
- *Be serious about collecting up-to-date data about sand movement throughout the metropolitan coasts and not relying on old information*
- *Borrow innovation from other countries*
- *Means I expect the SA government to concentrate on best practise, scientific, minimal environmental impact beach management not roll out something that has been done for 100 years, (Port Stanvac), and does not work.*

The second most commonly raised theme at 11% of comments was **general support for sand management**. These comments did not specify particular sand management approaches, but rather expressed a general support to manage sand in this section of the Adelaide beach system.

Example quotes include:

- *It means taking sand from where it is excessively building up (due to human interventions) and returning it to where it came from*
- *Maximise sand on beaches that need it, and reduce sand where it is also changing the natural environment*
- *Let's remember sand is for everyone, no one owns it and some places get a build-up while some get eroded. Let's use the build up to nourish the eroded sections*
- *We created this situation and if we are to sustain the southern beaches, humans have to bring some of the sand back otherwise those beaches will be washed away.*
- *Should be as little change as possible from current distribution, but beaches that have suffered severe erosion like West Beach do need topping up.*

10% of respondents identified **overdevelopment and manmade structures** constructed on the dune system as well as general urbanisation as a key cause of the current problems with sand distribution. Some made suggestions for removal or managed retreat of buildings and structures on the dunes or tightening planning rules to prevent any further development in the dune area.

Example quotes included:

- *Remove the buildings and infrastructure that are the cause of the sand erosion*
- *Ideally manage the stability/instability of the coastline to a similar state that existed before much of the dune systems were reclaimed for urbanisation*
- *This merry go around approach of taking sand from one beach because someone decided to allow a developer to build a road and homes with a view rather than listening (Greed)*
- *One solution would be to stop building on areas where there is no to little beach left. For example the West Beach surf life saving club was recently demolished. Rather than looking for a more suitable location to rebuild the club they have chosen to rebuild on the same location where there is no beach and a rock wall. Why has this been allowed? More thoughtful planning of ongoing development should be a key consideration to reduce the impacts on the beach environment*
- *We have a highly compromised dune system and beaches in Adelaide due to construction of roads and infrastructure on original dunes*
- *Maximising sand staying on beaches means dismantling the infrastructure that has prevented the natural flow that nourished the beaches and preventing further disruption by limiting building on dunes*
- *Preventing further development on the coast will also help*

- West lakes beach cannot be saved because there is no beach - the council and the local government allowed the wealthy elite to build on land that should have been kept as a beach and sand dunes. It cannot be repaired without knocking down their buildings and reclaiming the area for sand dunes.
- I think we need to rethink buildings and infrastructure on sand dunes. I would prefer to see a process where we give back to the dunes, one house and road at a time.

Please note that any comment relating specifically to marine structures including groynes, rock walls, marinas and boat ramps were counted as a separate theme. A further 3% of responses were against groynes and rock walls, 3% supported groynes and rock walls, and 4.3% commented specifically on the problems caused by local boat ramps and marinas.

10% of respondents expressed **issues with the survey** and that it was not designed well and biased.

Example quotes include:

- Because your questions are so specific I cannot really give the answers I want to give
- The previous section of this survey gave us 3 inadequately worded pre-determined responses to choose from and now in this section we get a grab bag of areas that we have to arbitrarily decide need more or less sand ... West Beach?!
- Your questions in this survey did not provide an adequate selection to reflect my views
- The statements in Q5 are deceptive, misleading and in no way represent the outcome that is most acceptable to me or anyone else
- This is a biased survey, and for the all important question 5 there is no box for comments.

9% of respondents commented on the need for **dune restoration and stabilisation**. Respondents would like to see a range of measures such as fencing, revegetation and seagrass wrack to keep sand deposited through sand management on the beach, or to restore natural dunes thereby minimising the need for further sand management.

Example quotes include:

- Having time to plant out the dunes before the sand is washed into the ocean
- Building up sand dunes and holding vegetation in West Beach and Henley Beach areas
- Looking at better methods to secure the sand on the beaches through planting and seaweed and boulders for example as we all know what happens to sandcastles when the water rises or rain / storms occur
- Capture blowing sand with low meshed fencing and then consolidate the growing dunes by planting local grasses and coastal ground-covers that hold the sand in place.
- The need to use sand of an appropriate grain size.

9% of comments raised the need to use sand of an **appropriate grain size** to deposit onto beaches. Respondents were concerned that as sand sourced from the northern beaches is very fine, it washes away very quickly and therefore has limited effect. Respondents would like to see coarser sand used from sources such as quarries, the mouth of the River Murray and other offshore areas.

Example quotes include:

- Sand staying on beaches means using coarser sand or devices to slow the rate of sand loss
- Maximising sand staying on beaches would mean the use of the correct sized grain of sand not scavenged from other beaches but through external sources
- The filtered sand is so fine that where it is being pumped out on to beaches it immediately gets washed away, you can stand there and watch it happen. It is utterly futile and wasteful of money and energy (huge consumption of fossil fuels involved)
- The sand management of bringing in coarser quarry sand by trucks to west beach has worked well, compared to the lighter, thinner sand from the northern beaches
- Import large grain size sand on barges from Murray Mouth to exposed areas.

9% of comments expressed the desire to do nothing to manage sand in this part of the coast. Respondents felt that humans should stop interfering with the natural movement of sand, and either take no further action or take action only to remove or stop existing interferences to allow the coast to revert back into a more natural state.

Example quotes include:

- *To me, the comment means "let sleeping dogs lie". When we fiddle with nature, we usually make things worse than they already are*
- *We should not interfere with nature. If we have caused the path and flow of water and sand to change then we should take all reasonable steps to rectify this back to natural conditions*
- *Nature shouldn't be for us to meddle with, let the people follow where the sand goes naturally*
- *In a very general sense, it means not interfering with nature; each 'solution' to a man-made problem (e.g. construction of infrastructure in coastal environments) creates an even bigger problem*
- *Maximising sand is leaving nature to take pursue its ancient (albeit interrupted and disturbed) course.*

4.4 Ideas for the long list

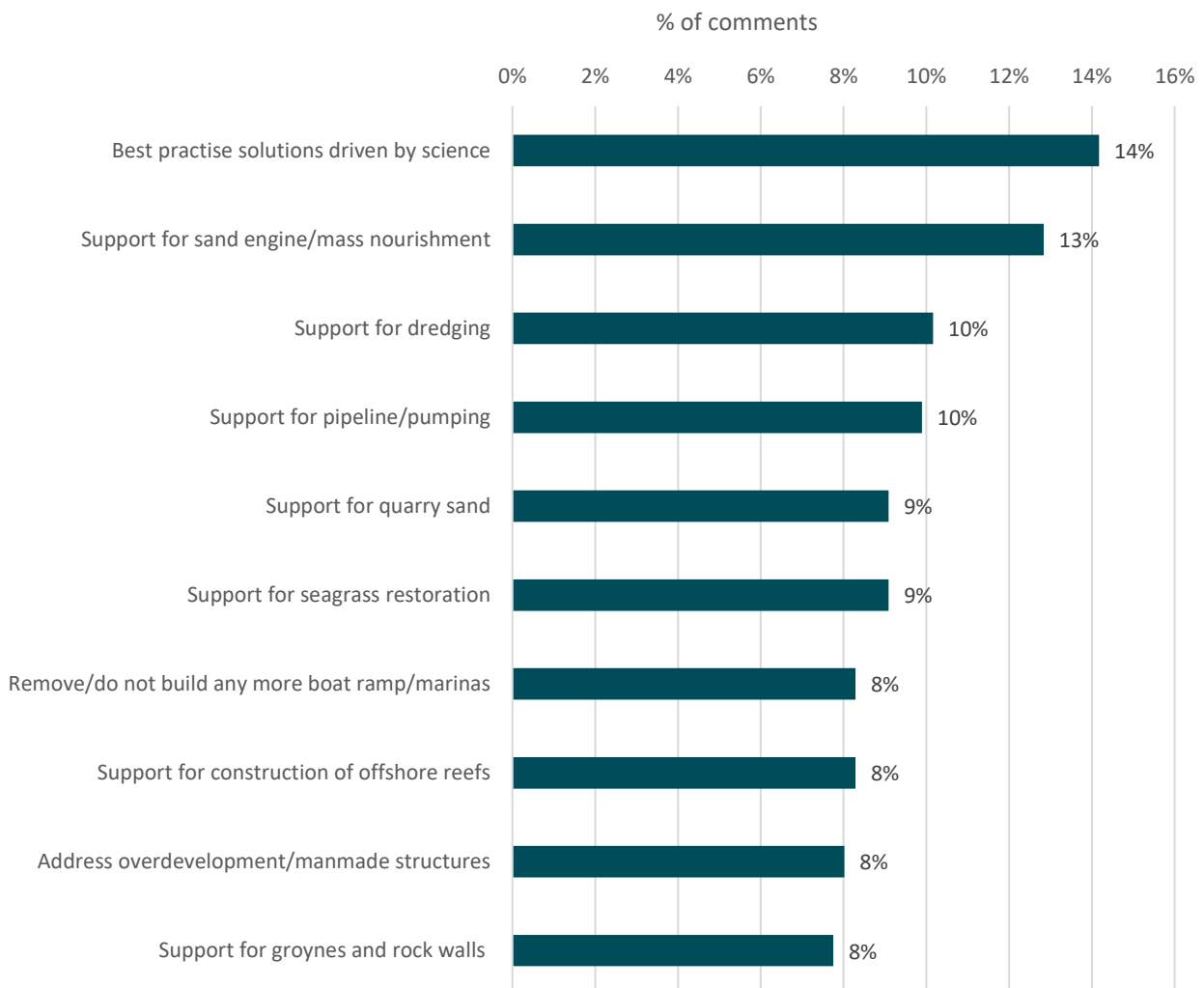
Respondents were provided the opportunity to write a comment in response to the question, 'Do you have any other approaches, yet to be identified, to add to the list to be considered at this stage of the review?'.

Bluecoast will review the comments provided to identify those which propose sand management approaches that are not on the current long list and should be added and considered in the review process.

341 respondents provided a comment. Comments were coded into themes to provide an indication of the most commonly raised topics. Please note, one comment could have been coded across multiple themes. Verbatim comments are provided in Part B Appendix C.

The top 10 themes raised in comments are shown in the graph below. The top 5 themes are then described in the paragraphs below, with example quotes provided. The number of comments for all themes is provided in Part B Appendix D.

Themed comments - other approaches to add to the long list (341 comments)



Best practise solutions driven by science was the most commonly raised theme, reflected in 14% of comments. Respondents want the sand management response to be driven by best practise, science based solutions using up-to-date information. They encouraged looking towards overseas case studies to learn, and to listen to experts rather than the community or politicians. Respondents also wanted to see studies and monitoring to be undertaken to ensure that the issue and the impact of any sand management is well understood and communicated.

Example quotes include:

- *The science, expert advice and current approaches that are working in similar environments, should be the number one focus. Less focus and time should be given to 'amateur experts' from minority and interest groups with their own agendas.*
- *I understand that there is a plethora of expertise on the subject of coastal erosion making up the panel. But have further reaching methods been identified to reduce these erosive forces?*
- *broaden your horizons take the time to do the research, ask for help from experts, think outside the square. Measure twice, cut once.*
- *There must be similar places world-wide that have managed this problem without disruptive and destructive sand carting from beaches further along the coast!*
- *Model outcomes and build to the model*
- *An Independent Environmental Impact Study as promised, instead of using flawed and antiquated 20th century information.*
- *Speak to an expert! What do the experts say?*
- *Remove the politics and embrace the science into action. From the outset it is wrong that this review report/outcome, delivered by the panel to cabinet, will remain concealed/hidden from public knowledge/inspection. The coast needs an outcome with transparency.*

The second most commonly raised theme was **support for using a sand engine to mass nourish beaches** with 13% of comments reflecting this view. Respondents commonly cited the success of this approach overseas, and the recommendation of the 2018 Danish Hydraulics Institute (DHI) report to implement this solution. Respondents considered this approach would have less impact due to its infrequency and offshore location minimising impacts to beaches, beach users, residents and the beach environment. Comments raised its greater efficacy due to use of coarse sand. Respondents felt the up front costs of this solution would deliver a greater cost-benefit in the longer term.

Example quotes include:

- *The Sand Motor is a 'mega-nourishment' implemented in the Delfland Coast (North Sea coast of South Holland, The Netherlands) as innovative pilot project to test the upscaling of regular sand nourishment along the Dutch coast, carried out by Rijkswaterstaat (the Dutch Ministry of Infrastructure and Water Management Works)*

- I believe plenty of options have been identified with Mass Nourishment via barge being the best working outcome, but because of up front costs nothing other than the pump stations are being considered
- Mass nourishment of coastal nearshore using quarry sourced sand of appropriate grain size or off shore areas ie Murray Mouth and moved by barge to West Beach
- Mass nourishment ie place a large amount of sand at West Beach every 10 years or so
- Mass nourishment would seem the way to go, perhaps delivered via a sand engine, with suitable coarse sand sourced from quarries and off-shore areas
- Establish a mini sand engine at West Beach as recommended in DHI Report, 2018
- Please consider the Sand Engine method - it is economically a good long term solution
- For example, the Danish Hydraulics Institute recommended a mini Sand Engine as a solution for West Beach sand management in 2018.

10% of comments expressed **support for dredging** to source offshore sand to replenish beaches. Respondents felt that this would reduce impacts on current sand donor beach environments and users, and would deliver a more effective outcome due to the coarser sand available.

Example quotes include:

- Source sand for West Beach from quarries or offshore areas
- An approach that adopts nearshore nourishment via dredge will be the least invasive and most effective at providing long term sand nourishment to beaches at risk of erosion
- Dredge the sand prior to reaching Semaphore beach shore and transport sand by a purpose built barge depositing sand to where it is needed eg West Beach
- Sand can also be sourced from the seabed, well beyond the foreshore. This will also eliminate any impact to current Adelaide beaches.

10% of comments expressed **support for using a sand pipeline**. Comments cited the success of sand pipelines for other metropolitan Adelaide beach systems, and felt that a similar approach should be used for this area to minimise the current impacts of sand carting.

Example quotes include:

- Reinstate the original plan for a pipeline
- Managed sand pumping regime conducted in winter months to minimise impact on beach users
- No I feel sand pumping is the best option
- Pumping offers the most convenient and sustainable option
- The "pumping of sand to the Brighton / hove beaches is very successful and works well. Great system should be expanded to other locations.

9% of comments cited **support for using quarry sand** for beach replenishment. Respondents stated that quarry sand is more suitable due to larger grain size, and that sourcing sand from quarries prevents the damage to the beach and marine environment from sand mining.

Example comments include:

- Use coarser sand - use quarry sand
- Mass nourishment of coastal nearshore using quarry sourced sand of appropriate grain size
- Our beach is not a mine or a quarry. Stop the trucks! Source sand from somewhere else e.g. Mount Compass where sand has good retention properties as it is quite coarse
- The sand replenishment of bringing in coarser quarry sand by trucks to west beach has worked well.

Support for seagrass restoration was raised in 9% of comments. Comments suggested this be implemented at a large scale to minimise sand erosion and hence minimise the need for sand management. Respondents felt that this natural approach would have benefits for sand and the environment and would minimise the need for disruptive infrastructure and equipment on the shore.

Example quotes include:

- Slow erosion of hot spots by increasing sea grass, off shore structures to reduce impact and power of waves
- Create environmental solutions to minimize erosion including offshore reefs, sea grass planting, etc
- 'Multipronged approaches i.e. offshore reefs to reduce wave action, sea grass expansion (so far minimal funding available)
- Need to restore sea grass beds.

4.5 Analysis by management cell

Further analysis was undertaken to look at how the response to particular survey questions varied depending on the section of coast that respondents visit most. The results about sections of the coast have been consolidated into management cells based on current sand management and environment.

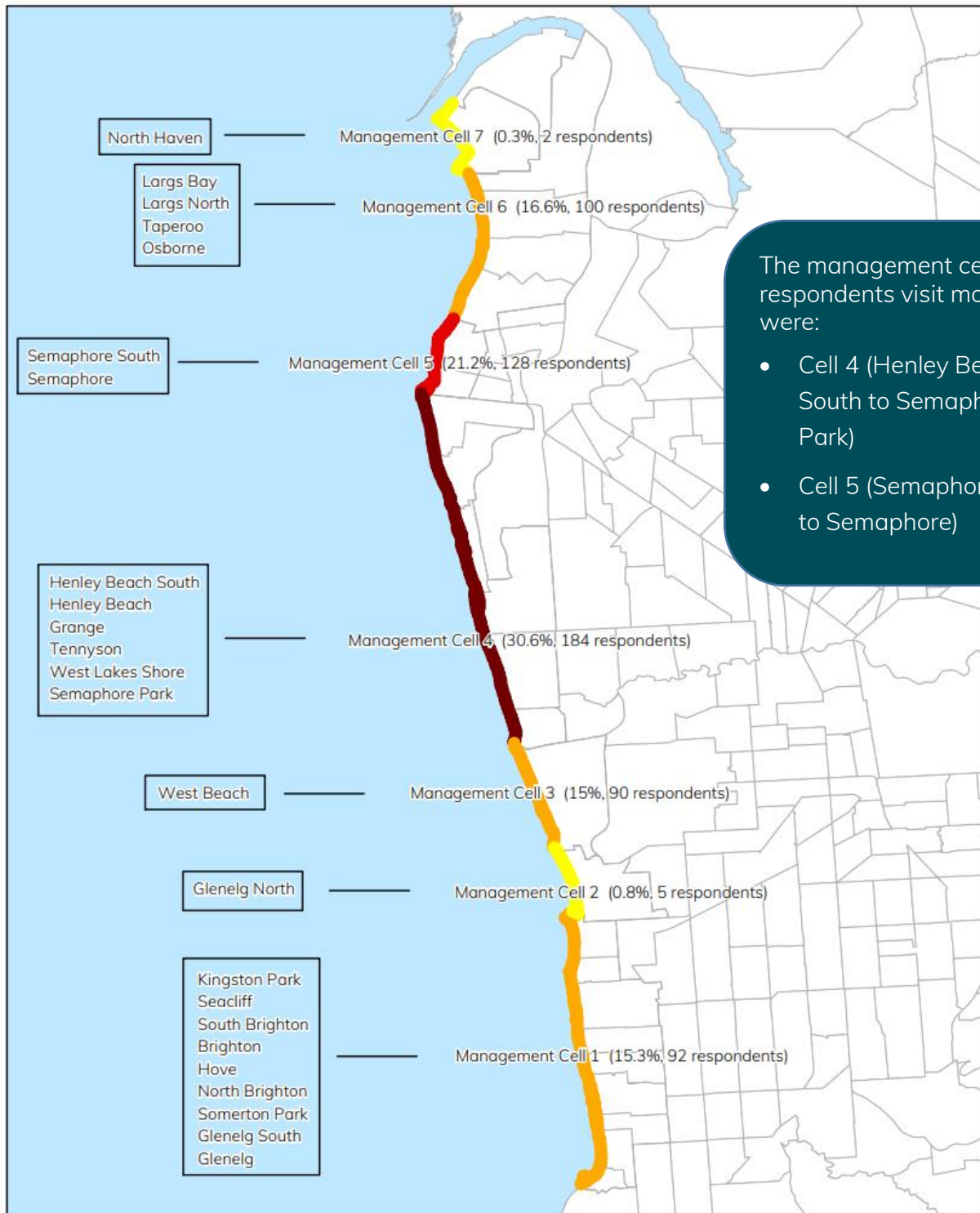
The management cells and the number of respondents who identified they most often visit a section of coast within the cell are shown in the table below.

When interpreting the results in this section, it is important to note that the survey questions asked people to respond generally, not based on the beach they visit most. Also cells 2 (Glenelg North) and 7 (North Haven) only had 5 and 2 respondents respectively and as such care should be taken in extrapolating results to a wider population.

Graphs developed for this analysis are provided in Part B Appendix D. The following section summarises these results.

Management cell	Sections of coast	Number of respondents who identified they most often visit a section of coast within the cell
CELL 1	Kingston Park, Seacliff, South Brighton, Brighton, Hove, North Brighton, Somerton Park, Glenelg South, Glenelg	92
CELL 2	Glenelg North	5
CELL 3	West Beach	90
CELL 4	Henley Beach South, Henley Beach, Grange, Tennyson, West Lakes Shore, Semaphore Park	184
CELL 5	Semaphore South, Semaphore	128
CELL 6	Largs Bay, Largs North, Taperoo, Osborne	100
CELL 7	North Haven	2

4.5.1 What sections of the coast (management cells) are visited most?



Management Cell Respondents Visit Most Often

% Survey respondents



Total Survey Respondents = 601



0 2.5 5 Kms

4.5.2 Why respondents visit particular sections of the coast over others? (by cell)

Across all cells, 'close to my home or home of friends/family' was the main reason respondents visit their most visited section of coast.

The natural coast environment attracts respondents to cells 4 (Henley Beach South to Semaphore Park), 5 (Semaphore South to Semaphore) and 6 (Largs Bay to Osborne). Respondents also choose to visit cell 6 (Largs Bay to Osborne) because it is less crowded.

Respondents like to visit cell 1 (Kingston Park to Glenelg) and 3 (West Beach) because it's a safe beach. Respondents also choose to visit cell 3 (West Beach) and cell 7 (North Haven) because of easy access via paths of step.

Beach width and sand area quality is a top reason why respondents visit cell 1 (Kingston Park to Glenelg), cell 2 (Glenelg North), cell 4 (Henley Beach South to Semaphore Park) and 5 (Semaphore South to Semaphore).

Across all cells respondents often visit the coast to walk or run on the beach or to walk, run or ride along paths next to the beach.

Respondents also visit cell 1 (Kingston Park to Glenelg), cell 2 (Glenelg North), cell 4 (Henley Beach South to Semaphore Park), and cell 5 (Semaphore South to Semaphore) to swim.

Visiting cafes or shops along the foreshore is also one of the top reasons for respondents to visit cell 1 (Kingston Park to Glenelg) and cell 3 (West Beach).

Cell most often visited	What attracts you to visit this part of the coast over others?	What do you usually visit this section of the coast to do?
Top responses % of respondents who most often visit a section of coast in the cell		
CELL 1	- Close to my home or home of friends/family (77%) - Beach width and sand area quality (37%) - It's a safe beach (32%)	- Walking or running on the beach (73%) - Swimming (57%) - Walking, running or riding along paths next to the beach (55%) - Visiting cafes or shops along the foreshore (55%)
CELL 2*	- Close to my home or home of friends/family (80%) - Wave conditions (80%) - Beach width and sand area quality (40%)	- Walking or running on the beach (100%) - Swimming (80%) - Walking, running or riding along paths next to the beach (80%)
CELL 3	- Close to my home or home of friends/family (93%) - It's a safe beach (48%) - Easy access via paths of steps (43%)	- Walking or running on the beach (81%) - Walking, running or riding along paths next to the beach (73%) - Visiting cafes or shops on the foreshore (70%)

Cell most often visited	What attracts you to visit this part of the coast over others?	What do you usually visit this section of the coast to do?
CELL 4	• Close to my home or home of friends/family (92%) • Beach width and sand area quality (48%) • Natural coastal environment (41%)	• Walking or running on the beach (87%) • Swimming (70%) • Walking, running or riding along paths next to the beach (66%)
CELL 5	• Close to my home or home of friends/family (92%) • Natural coastal environment (59%) • Beach width and sand area quality (55%)	• Walking or running on the beach (89%) • Walking, running or riding along paths next to the beach (65%) • Swimming (61%)
CELL 6	• Close to my home or home of friends/family (86%) • Natural coastal environment (63%) • Less crowded (54%)	• Walking or running on the beach (84%) • Walking, running or riding along paths next to the beach (68%) • Walking the dog (57%)
CELL 7*	• Close to my home or home of friends/family (100%) • Easy access via paths or steps (100%) • Less crowded (100%)	• Walking or running on the beach (100%) • Walking, running or riding along paths next to the beach (100%)

* low responses extrapolate with caution

4.5.3 What types of sand management activities are disruptive to you? (by cell)

The following table shows that permanent plant and equipment that impact views was ranked most disruptive in all management cells except for cells 3 (West Beach) and 5 (Semaphore South to Semaphore) which ranked sand management vehicles on beaches as most disruptive.

Cell 1 (Kingston Park to Glenelg) ranked sand management vehicles and permanent plant and equipment as equally most disruptive.

All cells, except for cell 3 (West Beach), ranked temporary plant and equipment or infrastructure (such as dredges) located in the nearshore environment as least disruptive. Cell 3 (West Beach) which ranked temporary plant and equipment or infrastructure (such as sand collection units and pump stations) that interrupt beach or ocean views as least disruptive.

Cell most often visited	Activity ranked MOST disruptive	Activity ranked LEAST disruptive
	Based on average rank	
CELL 1	- Sand management vehicles on beaches AND (ranked equally) - Permanent plant and equipment or infrastructure that impact on beach or ocean views	Temporary plant and equipment or infrastructure (such as dredges) located in the nearshore environment
CELL 2*	Permanent plant and equipment or infrastructure that impact on beach or ocean views	Sand management vehicles (trucks and equipment) on beaches
CELL 3	Sand management vehicles on beaches	Temporary plant and equipment or infrastructure (such as sand collection units and pump stations) that interrupt beach or ocean views
CELL 4	Permanent plant and equipment or infrastructure that impact on beach or ocean views	Temporary plant and equipment or infrastructure (such as dredges) located in the nearshore environment
CELL 5	Sand management vehicles on beaches	Temporary plant and equipment or infrastructure (such as dredges) located in the nearshore environment
CELL 6	Permanent plant and equipment or infrastructure that impact on beach or ocean views	Temporary plant and equipment or infrastructure (such as dredges) located in the nearshore environment
CELL 7*	- Permanent plant and equipment or infrastructure that impact on beach or ocean views AND (ranked equally) - Temporary plant and equipment or infrastructure that interrupt beach or ocean views	- Temporary plant and equipment or infrastructure (such as dredges) located in the nearshore environment AND (ranked equally) - Permanent plant and equipment or infrastructure (such as dredges) located in the nearshore environment

* low responses extrapolate with caution

4.5.4 What examples of environmental protection are most important to you? (by cell)

Protecting coastal habitats, native plants and animals and maintaining the integrity of existing sand dunes were the most important environmental protection examples across all cells, except for cell 2 (Glenelg North) and 7 (North Haven) (however, these cells had a low response rate). Cell 2 identified avoiding carbon emissions and avoiding disturbance to natural areas. Cell 7 identified Protecting coastal habitats, native plants and animals and restoring nearshore aquatic habitats.

Cell most often visited	Environmental protection examples considered most important
Top 2 based on average rank	
CELL 1	• Protecting coastal habitats, native plants and animals • Maintaining the integrity of existing sand dunes
CELL 2*	• Avoiding carbon emissions from transport and operation of machinery • Avoiding disturbance of natural areas
CELL 3	• Protecting coastal habitats, native plants and animals • Maintaining the integrity of existing sand dunes
CELL 4	• Protecting coastal habitats, native plants and animals • Maintaining the integrity of existing sand dunes
CELL 5	• Protecting coastal habitats, native plants and animals • Maintaining the integrity of existing sand dunes
CELL 6	• Protecting coastal habitats, native plants and animals • Maintaining the integrity of existing sand dunes
CELL 7*	• Protecting coastal habitats, native plants and animals • Restoring nearshore aquatic habitats

* low responses extrapolate with caution

4.5.5 What sand management outcome do you want for the coastline? (by cell)

A vast majority of respondents (84%) who most often visit beaches in cell 2 (Glenelg North) cell 3 (West Beach) would like to change the way the coastline is managed so that sand is more evenly distributed. 64% who visit cell 4 (Henley Beach South to Semaphore Park) regularly would also like more event distribution of sand, however 31% would like to maintain the coastlines current state.

The spread of views in other cells is more pronounced.

Of those who visit cell 1 (Kingston Park to Glenelg) the most, around 40% each either want to maintain the current condition of the coastline or distribute sand more evenly.

Of those who most often visit a beach in cell 5 (Semaphore South to Semaphore) and 6 (Largs Bay to Osborne), more evenly distributing sand rated the lowest. In these cells around half of respondents would like to maintain the coastlines current condition and around 30% would like to reduce the amount of intervention.

Of the two respondents who most often visit cell 7 (North Haven), one would like more even distribution of sand and the other would like to reduce the amount of intervention in sand management.

Cell most often visited	Continue to manage the coastline to maintain its current condition	Change the way the coastline is managed so that sand is more evenly distributed.	Change the way the coastline is managed to reduce the amount of intervention
% of respondents who most often visit a section of coast in the cell			
CELL 1	42%	38%	20%
CELL 2*	20%	80%	0%
CELL 3	16%	84%	0%
CELL 4	31%	58%	11%
CELL 5	45%	20%	34%
CELL 6	53%	19%	28%
CELL 7*	0%	50%	50%

* low responses extrapolate with caution

Which beaches need more sand? (by cell)

Looking at views on West Beach sand levels, a large proportion of respondents in all cells except cell 2 (Glenelg North) and 7 (North Haven) (however, these cells had a low response rate) think that West Beach needs more sand. This was as high as 92% of respondents who most often visit cell 3 (West Beach).

Neighbouring cells 3 (West Beach) and 4 (Henley Beach South to Semaphore Park) both think the other needs more sand.

For those who most often visit Cell 1 (Kingston Park to Glenelg), 17% to 26% of respondents would like more sand on the beaches in their management cell. In contrast, a low proportion of respondents who most often visit all other cells thought more sand was needed Cell 1.

Around 35% of respondents who most often visit cell 1 (Kingston Park to Glenelg), 5 (Semaphore/South) and 6 (Largs Bay to Osborne) think no beaches need more sand. 100% of respondents (2 people) who most often visit cell 7 (North Haven) also think no more beaches need more sand. In contrast, cell 3 (West Beach) and 4 (Henley Beach South to Semaphore Park) had much lower proportions of respondents who did not think any sections of the coast needed more sand (6% and 17% respectively).

Around 28% of respondents who most often visit cells 5 (Semaphore/South) and 6 think Semaphore/South needs more sand.

Which beaches need less sand? (by cell)

Across all management cells, except cell 3 West Beach, the majority of respondents who most often visit the beaches in each cell thought no other beaches need less sand -i.e. 'none of the above' was selected by between 50% and 79% of respondents.

Only 14% of respondents who most often visit beaches in cell 3 (West Beach) thought no other beaches need less sand. Around 70% of these respondents thought that Largs Bay and/or Largs North needed less sand, and Semaphore South and/or Semaphore needed less sand.

Generally, respondents across all cells considered the more northern beaches to need less sand than the southern beaches.

5. What we heard - Key stakeholder workshop

The key stakeholder workshop was attended by 55 people from across the following 35 organisations:

- Adelaide Coastal Communities Alliance
- Adelaide Sailing Club
- Bird Life Australia
- City of Charles Sturt
- City of Holdfast Bay
- City of Port Adelaide Enfield
- City of West Torrens
- Coastal Ecology Group
- Conservation Council SA
- Friends of Grange Beach
- Friends of Gulf St Vincent
- Henley Beach Business Association
- Henley Dunes Care Group
- Henley Coastal Voice
- Henley SLSC
- Holdfast Bay Residents Alliance
- Holdfast Habitat Heroes
- Jetty Road Glenelg Mainstreet Committee
- LGA
- Lot 101 Dune Care
- Port Adelaide Residents Environment Protection Group
- Sand Piper Dunes Care Group
- SANTS / Kaurna Yerta Aboriginal Corporation
- Save our Shores: Semaphore Largs
- Save West Beach Sand
- Semaphore Mainstreet Association / traders
- Semaphore to Largs Dune Care Group
- Somerton SLSC
- Somerton Yacht Club
- Taperoo Dune Care Group
- Tennyson Dunes Group
- Tourism Industry Council SA
- WACRA Western Adelaide Coastal Residents Association
- West Beach SLSC
- Wild Endangered Dunes Group WEDGE

The following section presents key themes of feedback gathered via the workshop activities. Verbatim notes from the workshop are provided in Part B Appendix E.

5.1 What is important to stakeholders about how sand could be managed?

5.1.1 What minimise disruption to communities means to stakeholders

An important part of minimising disruption to workshop participants was for them to be able to continue to use the coast the way they do now. This included being able to safely access the beach for walking, running, walking a dog, swimming, surf life saving activities and using adjacent paths for walking, running and riding. Participants commented that the beach is a place for all that supports connection to others and nature as well as a healthy lifestyle.

Another common theme raised was that having fair distribution of sand is important and that some disruption is inevitable for a long term solution.

Vehicles on beaches are seen as disruptive. Both sand carting trucks and sand scrapers were identified as creating noise, dust and impacting safety.

A pipeline was identified as disruptive by participants and that the Glenelg Pipeline has flaws.

Participants raised concerns with construction activities and would like to avoid digging up roads, paths, beaches and fencing off areas. Minimising disruption to businesses, tourists and all visitors from onshore construction was raised and a suggestion for offshore or dredging was made.

Avoiding disruption to businesses, events and the visitor economy in general was raised. As was locating infrastructure on walkways or beaches in a way that impacts views or near residents.

Environmental concerns raised included to not exceed noise, odour and air quality expectations and to protect dunes and plants and animals.

Participants suggested that education about the nature of the system or anticipated disruption is important to minimise community disruption.

'Playing politics' was raised as something that disrupts communities. This included pitting communities against each other or not listening to the science.

Comments were made about the need to use data about sand or asset condition to target responses.

5.1.2 What avoid environmental harm means to stakeholders

The key focus for avoiding environmental harm identified by participants was to protect local biodiversity - plants, animals on the beach, in the dunes and in the ocean.

Aligned to this was a desire to protect and maintain sand dunes and the dune profile. Participants reflected on the important environmental, amenity, and coastal protection services they provide.

Stopping and preventing erosion was also raised. Some commented that erosion will increase with climate change and that we need a coastline that is resilient to the predicted impacts. Seagrass restoration was suggested as a way of reducing erosion.

Participants raised considerations for machinery and equipment. They suggested looking at the lifecycle of equipment, the carbon footprint and whether aspects can be reused or recycled.

In particular, some participants raised concerns with the impact of a pipeline in terms of physical footprint, noise and microplastics. Some also raised concern at lowering beach levels with sand mining.

Scientific data and expert opinions were considered important. Participants reflected on the need for expert risk management, using up to date data, properly assessing the intertidal zone, and using expert advice and innovative approaches.

Some participants related environmental harm back to how they use the beach. For instance, they would like safe beach use, to swim in clear water, a long beach environment and no land-locked jetties.

Concerns were raised by some about the use of quarried sand and the impact it may have on the receiving environment.

Other ways participants defined avoiding environmental harm included:

- Protecting infrastructure and homes and maintaining sea walls
- Managing the coastline fairly
- Considering the impact of commercial development along the coast
- Applying a cultural lens, protect and preserve significant Kaurua cultural sites
- Considering environment above cost
- Do as little as possible; as much as is needed. To 'first do no harm'.

5.1.3 What maximise sand staying on beaches means to stakeholders

Participants explained what they want future beaches to be like including a beach profile in equilibrium, a walkable beach at high tide (e.g. 5m or 20m beach width), growth of all beaches, and beautiful, natural and stable beaches.

Future beaches are important for our children, community and social cohesion and mental health. They are for everyone. They should provide spaces for people to walk, families to swim and play and dogs to walk. They need to provide adequate sand for surf life saving activities.

Sand needs to be managed in a way that attracts people to businesses and is good for tourism and the economy. Participants want good amenity and aesthetics, and some suggested having beach nodes of high amenity at key urban areas.

Protecting, stabilising or growing dunes was considered important for beach ecology and plants and animals. Seagrass restoration was identified as a way of slowing sand movement and offshore reefs were suggested to modify wave action.

Sand sources were raised. Some do not want sand taken from a healthy beach to support another. Some suggested using quarried sand (including international sources) with a larger grain size, while others do not want to use quarried sand.

Consequently, sand delivery and placement were raised. Some do not want 'wet sand' delivered by a 'flawed' pipeline and would rather mass nourishment of sand in the nearshore environment. Others

suggested that the pipeline has worked well for Brighton so why not for Henley/West Beach. Other suggestions included having realistic expectations about 'delivering enough sand in the right location'.

Having a flexible and tailored response to sand management was highlighted. Some suggested that multiple solutions will be required and that different sections of our coastline may require different solutions and that the needs may change over time. A flexible sand deposition process could be explored.

Cost was top of mind for some participants who commented that the necessary money needs to be spent to deliver the best outcomes possible and Councils could share costs.

Again, participants want science and relevant data taken into account to identify a sand management response.

Other contributions about maximising sand staying on beaches included:

- Impacts of hard infrastructure: no more breakwaters – due to safety issues; mitigate rebound impact of rock walls
- Take measures to reduce erosion
- Reducing ongoing management (disruptive)
- Someone is made accountable!
- Immediate action but long-term solutions too
- Manage stormwater
- Aboriginal consultation not lip service imperative to securing sand and potential employment opportunities
- Fortifying coastline to build resiliency against climate change impact.

5.2 Ideas for the long list

Bluecoast will review the comments provided by stakeholders at the workshop to identify those sand management approaches that are not on the current long list and should be added and considered in the review process.

The types of ideas raised by stakeholders included:

Scientific approach

- Include climate change data
- Select a point of reference as the desired beach width to track/work to
- Deploy science not politics.

Reduce erosion or capture sand

- Reducing stormwater run-off or channel out to ocean
- Offshore reefs (e.g. oyster reefs)
- Seagrass restoration

- Coastal revegetation (inc. dunes, plants to soften rock walls)
- Dunes protection and rehabilitation, biodiversity
- Catching and holding sand (e.g. drift fencing, coconut husks)
- Build a groyne at Bower Road, Semaphore.

Sourcing and moving sand

- Dredging/import sand (offshore, Murray Mouth, Section Bank, Garden Island, Western Australia)
- Use a barge to transport and deliver sand nearshore
- Recycle sand north to south, recover sand
- Pipeline ideas: pipe in ocean/out to sea, plastic v concrete pipe, pipe in the berm, pipeline from Henley to Glenelg, pipeline from land out to sea
- Independent costings of sand purchasing or consider purchasing quarries
- Mass nourishment, sand motor
- Sand carting with electric trucks.

Do less or remove development/infrastructure

- Rationalise beaches – invest in smaller natural areas (i.e. fewer sandy beaches)
- Do nothing
- Reduce/limit/prevent future coastal development or return land
- Remove or reshape coastal infrastructure – Glenelg Marina, breakwaters, seawall, Holdfast Shores, boat ramp, rock walls)
- Managing breakwater at Semaphore South/Port Malcolm – it stops sand flow.

General

- Look at other innovative and international case studies (e.g. New Jersey, Netherlands sand motor)
- Education
- Sustainable long term whole of life solution – environment, community economically
- Minimal disruptions – environment, noise, beaches, roads, water quality, safety, roads
- Low carbon emission approaches
- Koorana engagement/involvement
- Cost sourcing and sharing
- Work with nature
- Variety of approaches (e.g. no simple solution, different sections may require different solutions)
- Do something, before there is no sand and access to the beach, implement last 25yrs of reviews.

5.3 Other feedback

Participants placed other comments on a poster on the wall at the stakeholder workshop. Key themes of comments included:

Ideas and considerations

- What type of beach does Adelaide want to look at or live with?
- Is sand management the ongoing norm?
- Are other coastal areas having the same issues? Goolwa or Victor?
- Sand at Largs Bag and Semaphore very fine and contains shell/carbonite
- Holdfast Bay pipe works well, install along whole metro beach West Beach to Largs
- Electric Trucks (Tesla)
- Remove structures and limit development to improve sand movement
- Focus on climate change and sustainability
- Semaphore and Largs beach are eroding not accreting
- Whole coastal education – leaving sand where it is, is not sand management

Review process

- Risk review on short list options, impact/consequences
- Concern with reach of the engagement
- Use up to date data
- Criticism of the survey (who designed and approved it, terminology, not enough sand management outcomes to choose from)
- If the Pollies who live along the beach don't like this review of reviews, will we have another review of the review of the review?
- Concern regarding conflict of interest of consultant team members
- What are the options for complaining about the review process?
- Want the analysis results of the short list options to be made public.

6. What we heard - Submissions

This section summarises submissions made to via mail@urps.com.au. A summary of submissions table and verbatim submissions are provided in Part B Appendix F and G.

6.1 Who submitted?

119 submissions were received. These were a combination of short emails and longer documents.

Submitters were required to provide an email address and name.

Based on the information provided by submitters, 53% were a resident (including nearby and esplanade and foreshore residents). 9% of submissions were from a community, dunes or environment group.

Another 6% identified as a member of a group. 26% did not provide details of their residential or organisation address (unclear).

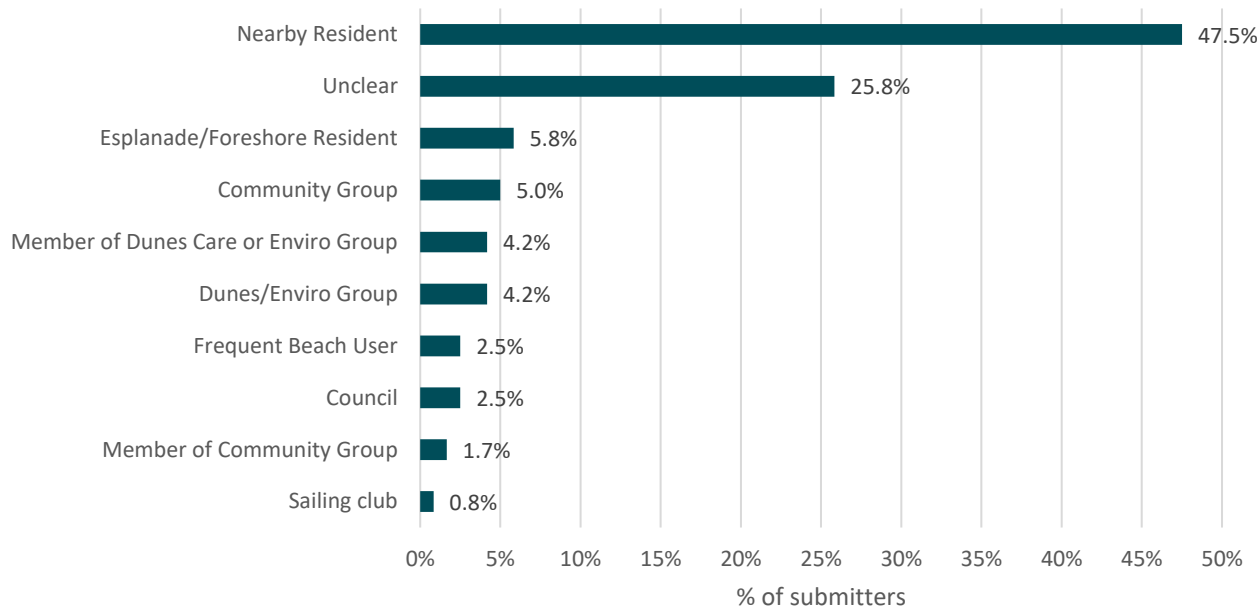
104 submissions were from individuals and 15 were from a group or organisation. Groups or organisations that made a submission were:

- Adelaide Coastal Communities Alliance
- Adelaide Sailing Club
- City of Charles Sturt
- City of Holdfast Bay
- City of Port Adelaide Enfield
- Friends of Grange Beach and Tennyson
- Henley Beach Business Association Incorporated
- Henley Coastal Voice Port Adelaide Resident's Environment Protection Group
- Save Our Shores: Semaphore Largs Bay
- Save West Beach Sand
- Semaphore Largs Dunes Group
- Taperoo Dunes Group
- Western Adelaide Coastal Residents' Association.

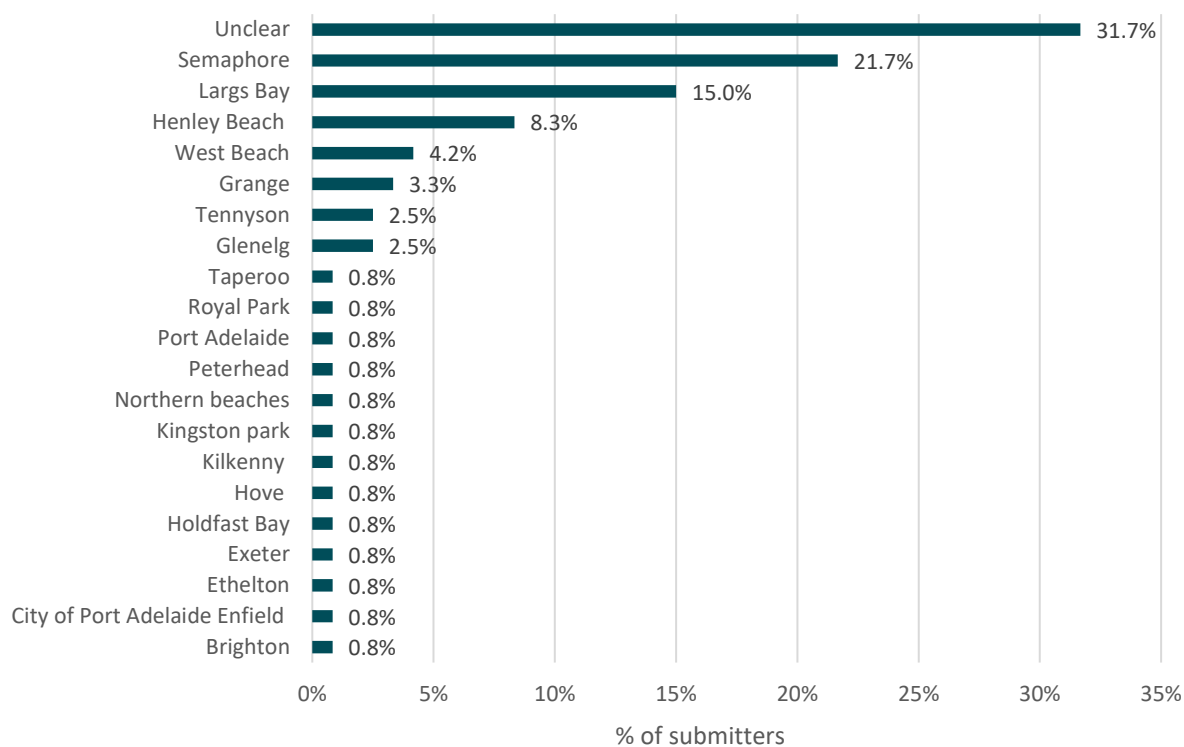
The suburbs submitters most often identified from were:

- Semaphore (22%)
- Largs Bay (15%)
- Henley Beach (8%)
- West Beach (3%)
- Tennyson and Glenelg (both 2.5%).

Type of submitters (119 total submissions)



Locations of submitters (119 total submissions)

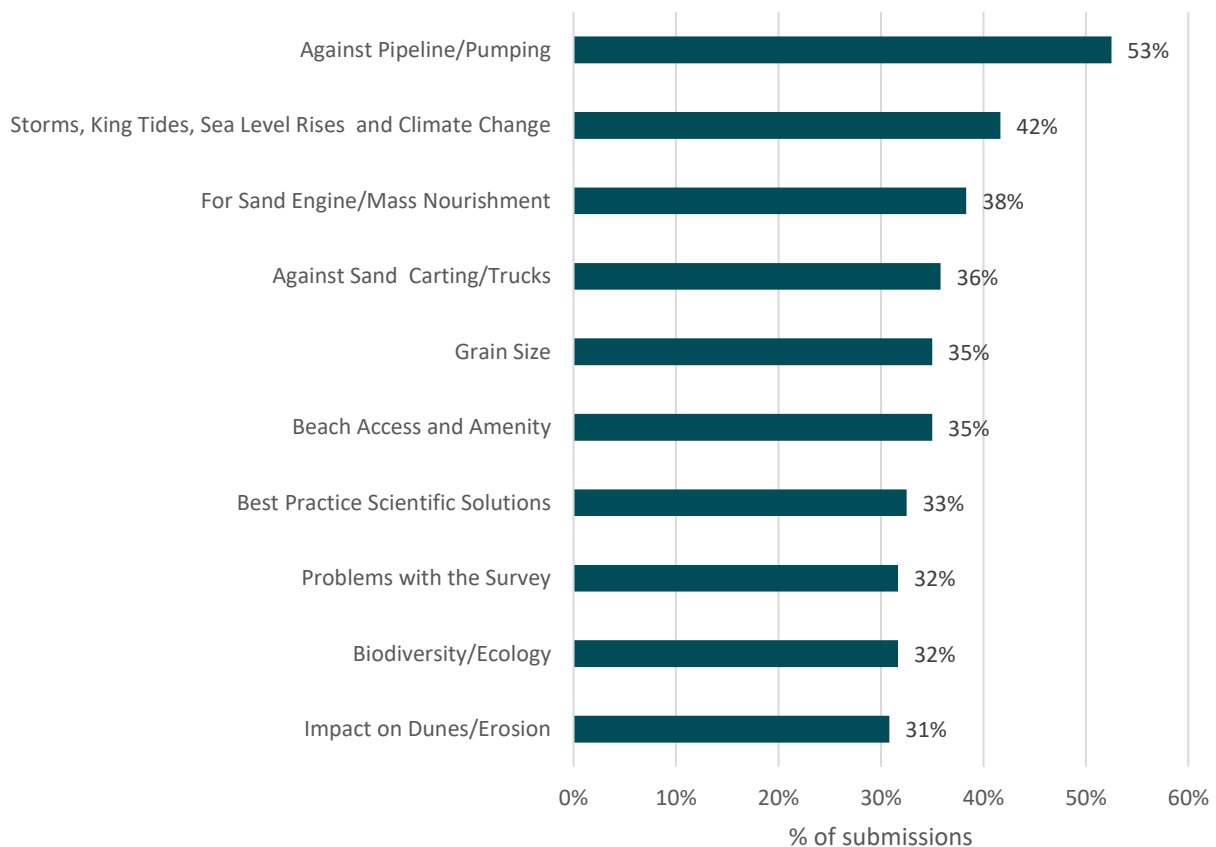


6.2 Key themes of submissions

The content in submissions was summarised and coded into themes to provide indication of the most commonly raised topics. Please note, one submission could have included multiple themes.

The top 10 themes raised in submissions are shown in the graph below and then described in the paragraphs following. The completing list of themes and the number of submissions raising them is provided in Part B Appendix H.

Top Ten Themes of Submissions (119 total submissions)



Over half of the submissions (53%), identified they were **against a pipeline or sand pumping** and were very strongly of this position. There were many reasons for this opposition such as environmental and amenity concerns, as well as on going costs and disruption from trucks and machinery.

Concerns about **storms, king tides, sea level rises and climate change** were the second most commonly mentioned theme at 42%. Submitters were concerned about how these impacts will exacerbate dune erosion and beach destruction.

Adopting a **sand engine or technique of mass nourishment** was identified by 38% of submissions as the preferred method for replenishing beach sand. Submitters advocated that mass nourishment should happen every 10 years, with a large quantity of sand (often quarried or dredged and barged) being placed

at the right time near shore, not on shore. Some suggested that instead of mass nourishment in a single location, sand could be deposited at multiple locations along the coast as needed. Sand engines or mass nourishment was often mentioned as cost effective, expert suggested, long term approach.

36% of submissions were **opposed to sand carting and trucks**. Often because of impacts associated with holes in the beach, noise, loss of beach amenity and community danger on the beach and the road. Several submissions also commented that it is not a long term solution and has increased erosion due to the disturbance it creates.

Grain size was mentioned in 35% of submissions and was a topic for which lots of scientific studies and diagrams were provided by submitters. They stated that the grain size of sand at Semaphore and Largs Bay beaches is too fine and has a high percentage of carbonate, making it unsuitable for replenishment efforts. And that smaller grain size means sand erodes faster and remains in the water for longer.

Another 35% of submissions expressed concerns about loss of **beach access and amenity**. Many spoke about the previous sand management efforts and how these negatively impacted their experience, use and view of the beaches. Some suggested that previous impacts to amenity had taken a toll on their wellbeing and that this should not happen again for the health of the coastal community.

A third of submissions suggested looking interstate and internationally for the **best practice scientific solutions** available. Submitters implored the review panel to seek the most effective and specialised approaches for Adelaide's unique coastal environment. They cited that investment needed to be made now in the best solutions to reduce costs and damage in the future.

32% of submissions expressed **problems with the survey**. The submissions cited concerns with filling out the survey, its design and data collection. Many raised issue with the wording and options of questions. Question 5 was often mentioned and submitters felt it was biased towards a pipeline, poorly written, restrictive and were concerned that it did not feature a free text box. They identified that as a result they had not completed the survey or not passed it on to others.

Biodiversity and ecology were raised by 32% of the submissions and were the second most mentioned environmental issue. Submissions highlighted the importance of maintaining a healthy beach for the prosperity of local fauna and flora - in the dunes, on the beach and in the ocean. It was emphasised that these natural beach elements are a large part of why the community love their beaches and they take pride in the diversity and uniqueness of Adelaide's biodiversity.

31% of submissions raised concerns about the **impacts on dunes and erosion** from sand management techniques and climate change. These submissions explained that the current or previous sand mining efforts have permanently damaged the dunes and beaches and that dunes have not recovered. Submissions explained that the impacts on dunes expose local infrastructure to harm as well as worsening the effects of high and "king" tides. The destruction of dunes in previous years and the continued effects on them have caused community upset and frustration as well as feelings of hopelessness in dune care groups.

7. Next steps

The steps of the Adelaide Beach Management Review are shown in the diagram at the end of Section 1 of this report.

The next step of the review process is to short list sand management approaches.

Bluecoast will undertake a high-level technical assessment to identify a shortlist of feasible sand management approaches from the longlist.

The assessment will follow an evidence-based approach using information and data from previous coastal monitoring, studies and research on Adelaide's beaches, as well as results of this engagement about what values matter most to community. Any new sand management approaches identified by the engagement will also be added to the long list for consideration.

The assessment will evaluate the effectiveness and practicality of the approaches on the longlist to filter out least feasible approaches.

The IAP will review the Shortlisting Report prepared by Bluecoast (Step 4) and then community and stakeholder consultation will be undertaken on the shortlisted sand management approaches (Step 5).

Appendices list

Due to the length of appendices, they are provided in a separate document - Engagement summary report Part B.

The appendices are:

Appendix A – Fact sheets and promotional materials

Appendix B – Survey questions

Appendix C – Verbatim comments from survey

Appendix D – Additional survey analysis by management cell

Appendix E – Key stakeholder workshop verbatim comments

Appendix F – Summary of submissions table

Appendix G – Redacted submissions

