



**Central Coast Recreational Use Study
Stage 2: The Tuggerah Lakes**





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Central Coast Recreational Use Study Stage 2: The Tuggerah Lakes

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Executive Summary

The Central Coast of New South Wales is one of the most valued and iconic coastal regions in Australia: with its beaches, lagoon and lakes providing a range of recreational opportunities for locals, visitors and tourists alike. However, forces such as encroaching residential and commercial development, climate change, a growing population and the need for better environmental conservation are individually and collectively placing increasing pressure on the recreational use of this coastline.

Council is currently developing three Coastal Management Programs (CMP): The Tuggerah Lakes CMP, the Open Coast and Coastal Lagoons CMP, and the Hawkesbury-Nepean River including Brisbane Water. Stage 1 was a scoping study which identified information gaps required to inform the development of management actions in the later stages of developing the CMP.

This report focuses on the Tuggerah Lakes system and the portion of Lake Macquarie within the boundary of the Central Coast Council.

Consultancy VisionEnvironment was engaged to carry out this study, which drew on existing information regarding coastal planning, desktop mapping and site visits. The site visited included carrying out a Coastal Recreational Use Audit which involved collecting information on the location of existing infrastructure in the coastal zone. The site visits also enabled observations to be made that supported the report recommendations.

This report should be read in part as a supplement to the Open Coast and Coastal Lagoons report also produced by VisionEnvironment. It contains only a summary of the relevant background sections, a brief overview of the overall methodology, audit and classification framework employed in the original study. Full descriptions can be found in the Open Coast and Coastal Lagoons report. The remainder of this report relates specifically to Tuggerah Lakes and the portion of Lake Macquarie within the boundary of the Central Coast Council.

The report has a series of maps that show specific uses for the whole coastline, notably:

- Shared-use paths; and
- Boat launching ramps.

A Coastal Recreational Use Classification Framework was developed which enable the coast to be categorized into either a node or a connector. Nodes are developed areas within a foreshore reserve that have a variety of infrastructure to allow for a range of passive and active recreation activities.

Four types of nodes are recognised:

- Beach/Foreshore Access Nodes – provide for only beach and water-based uses;
- Minor Activity Nodes – provide additional park-based active and passive uses, with greater capacity for specialist water-based use;
- Moderate Activity Nodes – provide a greater variety of park-based recreation, including commercial and indoor uses, however may restrict specialist water-based uses; and
- Major Activity Nodes – provide more extensive commercial opportunities and are typically used for tourism purposes.

Connectors are the foreshore areas that act as links between two nodes. Connectors have a range of values, including ecosystem, recreational, social, aesthetic, wildlife corridors, and, where there is no foreshore reserve (i.e. no public access), private economic. Connectors can be well vegetated, cleared of native vegetation and anything in between. They are mostly free of infrastructure, but some areas have a formal path or track, a track with access to the beach, and the occasional lookout or seat.

Seven types of coastal connectors are recognised, with the first five contained with public reserves, and the last two contained on private land with no public access:

- Conservation Connectors – well vegetated areas within

conservation reserves and well separated from urban areas; facilitating primarily land based recreation with high aesthetic, nature and wilderness experiences;

- Landscape connectors – well vegetated foreshore reserves with limited infrastructure, set within urban areas. They have limited beach and water-based recreation, however may provide unique aesthetic, nature and wilderness experiences;
- Shared Path Connectors – foreshore reserves with native vegetation similar to Landscape Connectors, but typically contain shared paths and supporting infrastructure within the reserve that facilitate a range of additional recreational uses, along with enhanced aesthetic and educational experiences;
- Urban Connectors – foreshore areas with enhanced water and beach and path-based uses, however little if any native vegetation, thus negligible nature and wilderness experiences. Either a road or path provides a hard edge to the adjacent residential areas;
- Local Connectors – with houses directly abutting, these foreshore reserve areas tend to be narrow and with limited native vegetation. No hard edge separates the houses from the foreshore, thus providing beach and water use primarily to local residents;
- Residential Connectors – set within urban areas with no public foreshore and private property directly abutting the water, thus providing beach and water use exclusively to residents of these private properties; and
- Rural Residential Connectors – set within rural areas with no public foreshore and private property directly abutting the water, thus providing beach and water use exclusively to residents of these private properties, while often conserving areas of native vegetation.

Part B of this report has a series of maps that show how the foreshore of the lakes have been classified and the location and certain types of key infrastructure.

The report contains an extensive literature review which

included reviewing data collected on four different studies that carried out surveys of users, one of which was Council's "Your Voice" as well as the "Tuggerah Lakes foreshore restoration works – community survey". The key findings of the literature review, observation made on the site visit, the mapping carried out for this report, the review of relevant Council and other reports, and discussion with Council's officers enabled the following recommendations to be made.

Shared use paths

The existing multi-purpose "shared" paths are very popular and well used for walking, cycling and running. Council's bike plan focuses on cycling as a mode of transport. Whilst the social and environmental benefits of providing cycling infrastructure for commuting are acknowledged, Council should reconsider whether it has the correct balance with respect to providing shared path infrastructure, and whether providing infrastructure for recreational purposes, especially around the lakes (as well as the open coast) should be given a higher priority.

Recommendations:

1. Council should reconsider whether it has the correct balance with respect to providing shared paths infrastructure and whether providing infrastructure for recreational purposes, especially around the lakes (as well as the open coast) should be given a higher priority.
2. Council should develop a 5-10 year plan to extend the existing shared paths network and walking paths within the foreshore reserve of all the lakes and subject to sepecific recommendations below;
3. As Council rolls out the extension of the shared and walking paths network, it should also address the problems of private intrusion and use of public foreshore, remove informal uses and look for opportunities to rehabilitate areas within the foreshore with native species so as to increase the environmental value of the foreshore.

4. The following are specific recommendations:

- a. Lake Macquarie
 - i. Gwandalan: there are sections of the foreshore that are flat and with an open understory and these would be suitable for a shared path, whereas areas such as around Diamond Drill Point are more suitable to have the existing walking track upgraded in parts for easier walking;
 - ii. Summerland Point: the northern section has no opportunity for paths as there is no foreshore reserve. The remaining area to the west of Maddison Reserve is suitable for a shared path, but the existing walking track could be upgraded and extended in the short term;
 - iii. Chain Valley Bay: the foreshore reserve of the three coastal suburbs of Chain Valley are suitable for shared paths, however are relatively short. Linking the three suburbs with a continuous path has merit. The link between the northern suburbs and the middle suburb is a well vegetated area so this path is probably best to be a low-key walking track. From this middle suburb to the western suburb, a shared path is likely to be the best option, using the existing crossing of Karignan Creek and looking at environmentally sensitive options to link the path from the bridge to foreshore reserve at the end of Lloyd Ave and extending it along the foreshore reserve;
 - iv. Kingfisher Shores: the foreshore reserve here is suitable for shared paths, however would be relatively short;
- b. Lake Munmorah
 - i. Other than a small section in the north east corner, all of the urban areas of Munmorah Lake have a foreshore reserve with the capability to support a path;
 - ii. The northern urban area has an existing shared path for about half of the foreshore, starting at the western end and finishing at Tom Burke Reserve. The area directly to the east is suitable for a path, however there are sections that are well vegetated and the terrain is sloped, so a walking path might be more suitable in these sections;
 - iii. The south west urban area has a foreshore reserve suitable for continuous shared path;
 - iv. The south east urban area also has a foreshore reserve suitable for continuous shared path, with an opportunity to extend this across the existing foot bridge to Dunkey Island, and to construct a new foot bridge to the foreshore at the end of Edward Street: thus making a continuous path across the two urban areas.
- c. Budgewoi Lake
 - i. All of the northern shore has a foreshore reserve, whereas the remaining urban areas in the southern half have extensive areas where there is no foreshore reserve, limiting opportunities here for paths.
 - ii. The entire northern shore has shared path that extends partly up Wallarah Creek to Pacific Highway. This path provides all the benefits referred to earlier in this report and Council should be commended.
 - iii. Providing paths in the southern section of the lake is more problematic, given the number of areas where there is no foreshore reserve, although a shared path has been provided in a section along the south east. By extending the path up Peel Street, Council appears to be looking at safe options to extend this path around the area with no foreshore reserve using the very busy Main Road. This strategy might be more applicable for the western section (i.e. construct a shared path in the foreshore reserve and use the distributor roads around the areas with no foreshore reserve) as the distributor roads are much less busy than Main Road.
 - iv. An alternative for the two longer sections of foreshore reserve is to build on the natural values by increasing their biodiversity values, install walking tracks and create a more substantial node that focuses on passive recreation and biodiversity education.
- d. Tuggerah Lake
 - i. Most of the residential areas around Tuggerah Lake have a foreshore reserve, the exceptions being in the north, especially to the east of Wallarah Point/Main Road Bridge. This makes most of Tuggerah's lake foreshore suitable for shared paths.
 - ii. There is an existing shared path starting at the end of Prawn Beach Lane in the north and ending at March Street, where works are in progress to extend the path further south. The area north of Prawn Beach Lane does not have a continuous foreshore reserve and some of the terrain is steep with cliffs and well vegetated. The area either side of Craigie Park is better suited to building on the natural values by increasing their biodiversity values, install walking tracks and create a more substantial node at Craigie Park that focuses on passive recreation and biodiversity education.
 - iii. The lakeside urban areas either side of the outlet of Ourimbah Creek have foreshore reserves that are suitable for shared paths. These reserves have significant conservation value with extensive areas of salt marsh and shallow water. As well, either side of the very eastern end of Ourimbah Creek is a conservation area. Consequently, these foreshores are best suited for walking tracks rather than shared paths. There is an opportunity to link a path in the northern side to the Tuggerah State Conservation Area. Education signs could also be installed.
 - iv. A shared path commences near Chittaway Bay Lions Park, crossing over Tumbi Umbi Creek and ending at The Entrance. This path provides all the benefits referred to earlier in this report and Council should be commended.

Access

The need for better access to the lakes – i.e. more and better quality access points – was raised by nearly 75% of Tuggerah Lakes respondents and 86% of Lake Macquarie respondents to Council's Our Coast, Our Waterways community survey. The survey also found that 85% of users do not have direct access to the waterway/beach and providing good access is important for those many residents who do not have direct access to the lakes.

This study reviewed the distribution and quality of existing foreshore access points as well as literature related to the recommended distances residents should be from open space and public infrastructure. The report found that the ideal walkable catchment should be between 400-800m – i.e. the optimal spacing of nodes should have catchments of between 400-800m with minimal overlaps.

Recommendations

5. Council should increase the number of upgraded access points around the lakes and the three water courses covered in this study.
6. It is recommended that an ideal walkable catchment for these access points should be between 400-800m which also means that the optimal spacing of nodes should be 500m but no more than 800m.
7. The recommended upgraded access points in this report are a useful starting point for Council's consideration.
8. New infrastructure:
 - i. The recommended facilities at these points should be bins, shower where swimming facilities are provided, drinking water, information signage, look out and/or seating, some shading including for seating, and a small grassed area. Additional infrastructure in some circumstances could be a playground and a toilet/shower block.
 - ii. The flood hazard in the low-lying areas in the foreshore will likely increase in future as sea levels rise and storm

intensity and frequency changes with climate change. As well, wetland vegetation will likely migrate inland. Consequently, the design and placement of any new assets or infrastructure need take this into account including the findings of Council's Wetland Refugia Study.

Upgrading existing nodes

9. The quality of infrastructure at some of the access points we have classified as nodes should be improved and upgraded as noted in the relevant Figures.

Demarcation between private land and the foreshore reserve

There are many examples of private residents, whose properties back onto the foreshore reserve, having placed private facilities and infrastructure within the foreshore for their own private use. Having a shared path through the reserve has the added advantage of bringing the public into the foreshore, which reduces the sense of private ownership and should reduce the private use of the foreshore.

10. An audit should be carried out of the foreshore reserve where houses directly abut the foreshore reserve to identify cases of significant intrusion into the reserve.
11. To ensure an ongoing and clear demarcation between private property and the public foreshore a property boundary fencing policy should be introduced and implemented.
12. Council should work with residents to identify a more suitable location for this infrastructure.
13. The removal of these private facilities and infrastructure should also be integrated into the extension of the multi-use paths and walking tracks recommended above.

Biodiversity gain

Council has a biodiversity strategy that gives special attention to its coastal reserves and their important role in conserving and enhancing biodiversity. There are opportunities to

increase the environmental value, notably more plantings in areas of the foreshore in areas with little if any native vegetation.

Recommendations

14. An audit should be carried out of the foreshore reserve to identify areas where additional plantings of native vegetation could be carried out.
15. Affected residents should be surveyed to identify those who would be willing to have additional plantings in front of their property and work with these residents on species and site selection.
16. Council should investigate program options that would increase community awareness of the value of native vegetation, especially for lake side residents, including education programs and biodiversity and carbon credit schemes where discounts on Council services or incentives are offered in exchange for those credits.
17. The following reserves are suitable for enhanced management that focuses on environmental values, which would include working with the local community to develop a suitable management plan, upgrading passive recreational facilities and conservation and interpretive material:
 - a. Budgewoi Lake Ocowolrolong Point – end of Tingira Street;
 - b. Budgewoi Lake, The Corso Reserve at the northern end of The Corso;
 - c. Budgewoi Lake, Chelmsford Road Reserve – opportunity to work with students at Gorokan High school;
 - d. Tuggerah Lake - Craigie Park; and
 - e. Lake Munmorah – Reserve at the end of Andrew Street.

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1. Introduction

The Central Coast of New South Wales is one of the most valued and iconic coastal regions in Australia: with its beaches, lagoon and lakes providing a range of recreational opportunities for locals, visitors and tourists alike. However, forces such as encroaching residential and commercial development, climate change, a growing population and the need for better environmental conservation are individually and collectively placing increasing pressure on the recreational use of this coastline.

Council is currently developing three Coastal Management Programs (CMPs): The Tuggerah Lakes, the Open Coast and Coastal Lagoons, and the Hawkesbury-Nepean River including Brisbane Water. Stage 1 was a scoping study which identified information gaps required to inform the development of management actions in the later stages of developing the CMP. It was identified that a Recreational Use Study was required to better understand the various coastal recreational activities occurring in the Central Coast area and determine the adequacy of public amenities and infrastructure to accommodate for those activities now and into the future.

The Tuggerah Lakes system is an estuary made up of three interconnected lakes: Tuggerah Lake, Budgewoi Lake and Lake Munmorah. The Tuggerah Lakes are shallow estuarine wetlands where the water levels within the lakes are between 0.2m and 0.4m above sea level (WMAwater 2014). The average depth of each lake is 3.0m, 2.0m and 2.5m for Munmorah, Budgewoi and Tuggerah respectively (Glamore, Waters et al. 2020). The lakes have large areas of seagrasses especially in the shallow bays (Chapman and Roberts 2004).

The system is connected to the ocean through a single narrow point roughly in the middle of eastern side of Tuggerah Lake called 'The Entrance'. The system is fed by several freshwater rivers and creeks so that the salinity of the lakes is usually below sea water levels, ranging from around 15-35 milligrams of salt per litre which is from highly saline to brine (sea water) (Roberts and Dickinson 2005). In the past, the lakes had large areas of salt marsh on the foreshores, however the 2001 Tuggerah Lakes Estuary Process Study for the then Wyong Council (Roberts 2001) found that around 85% of the saltmarsh habitat has been lost to development on the foreshore.

The Tuggerah Lakes support a highly diverse natural ecology: most notably water birds, aquatic fauna, aquatic flora (phytoplankton and seagrasses) and the complex ecosystem the flora supports (Glamore, Waters et al. 2020). Council's biodiversity strategy notes that:

Marine and estuarine habitats (tidal sandflat, tidal mudflat, lake, rocky shores, beach, and ocean) are used by a wide range of resident and migratory wading, estuarine, ocean and shore birds. (Central Coast Council 2020, 16)

The lakes are important for both recreational and commercial fishing. They also have important cultural significance for the Darkinjung people, with sites around Tuggerah Lakes used for shelter, cultural meetings, traditional burials and hunting (McCann, Donaldson et al. 2021, 30). The waterways and foreshore are important for a range of active and passive recreational activities (Dye, Dickinson et al. 2006).

Consultancy VisionEnvironment was engaged to carry out two separate studies. The first study focused on the Open Coast and Coastal Lagoons, which is the subject of a separate report ('Stage 1'). This report is on the Tuggerah Lakes system ('Stage 2'). The portion of Lake Macquarie within Central Coast Council's boundary was also included in Stage 2; for the purpose of this report, the Tuggerah Lakes and the southern portion of Lake Macquarie will be referred to as 'the lakes'. The study areas for both stages are illustrated in Figure 1.

This study drew on existing information regarding planning for the lakes, two site visits and discussions with Council officers. The site visits included carrying out a Coastal Recreational Use Audit which involved collecting information on the location of existing infrastructure in the coastal zone of the lakes. The site visits also enabled observations to be made that supported the report recommendations.

2. Report Structure

The report should be read as a supplement to the Open Coast and Coastal Lagoons report. A summary of the relevant background sections are provided in Section 3 of this report. Sections 4 to 6 contain a brief overview of the overall methodology, audit and classification framework employed in this study, which are elaborated on in more detail in the Stage 1 report. Section 7 contains a series of maps that show how the lakes have been classified and the location and certain types of key infrastructure. Section 8 contains the study recommendations, and the final Section is a discussion of the recommendations and their relationship to, and consistency with, Council's approved strategic and policy context.

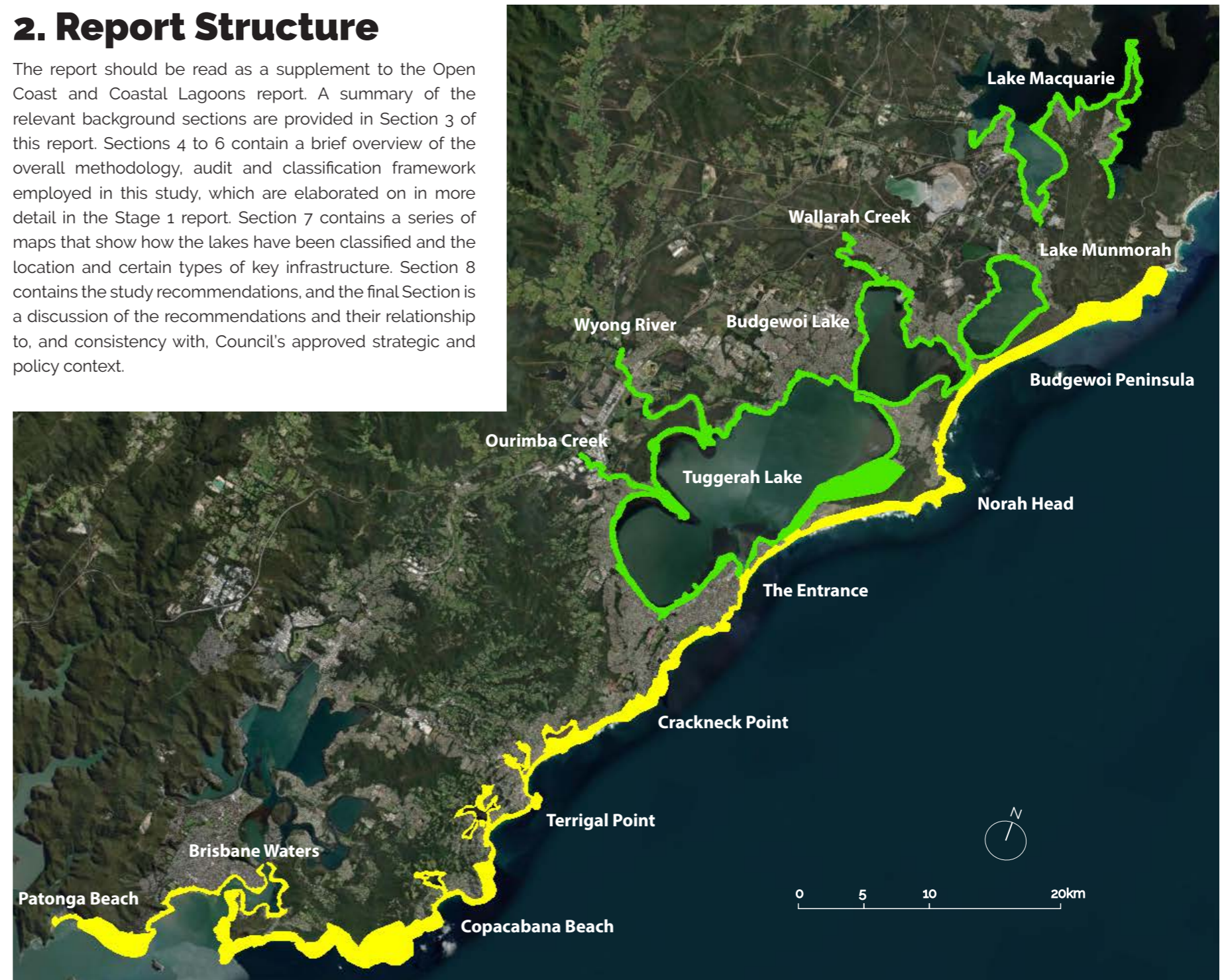


Figure 1: Study area extent, with Stage 1 in yellow and Stage 2 in green.

3. Review of the Literature

This review contains two broad sections. This first is an overview of the relevant high level strategic and policy documents within which the planning and management of the lakes need to be seen. The discussion here has been adapted from the Stage 1 Open Coast and Coastal Lagoons report. It also includes discussion of Council reports and other information on the lakes, mostly the Tuggerah Lakes.

This is followed by a summary of the broader relevant literature, both academic and technical reports which was also carried out for the Stage 1 report. These discussions, along with observation from the field trip and discussions with Council officers, are used to inform recommendations in this report in Section 8.

3.1 Review of relevant council reports and studies

3.1.1 Broad Strategic and policy context

Council has produced several reports, strategies and policies that are relevant to this study and to certain recommendations.

Council's Community Strategic Plan 2018-2028 (Central Coast Council 2020) sets the broad and overall objectives for Council across all its operations and responsibilities. There are five Themes and Focus Areas, and under the "Belong" theme the following focus area objective is relevant:

- B4 Activate spaces and places to complement activity around town centres, foreshores, lakes and green spaces

Under the theme "Green" the following focus area objectives are relevant:

- E1 Educate the community on the value and importance of natural areas and biodiversity and encourage community involvement in caring for our natural environment;

- F1 Protect our rich environmental heritage by conserving beaches, waterways, bushland, wildlife corridors and inland areas and the diversity of local native species;
- F2 Promote greening and ensure the wellbeing of communities through the protection of local bushland, urban trees, tree canopies and expansion of the Coastal Open Space System (COSS);
- F3 Improve enforcement for all types of environmental non-compliance, including littering and illegal dumping, and encourage excellence in industry practices to protect and enhance environmental health; and
- F4 Address climate change and its impacts through collaborative strategic planning and responsible land management and consider targets and actions.

Under the "Responsible" theme the following focus area objective is relevant:

- H1 Solve road and drainage problem areas and partner with the State Government to improve road conditions across the region.

Under the theme "Liveable" the following focus area objectives are relevant:

- K1 Create a regional network of interconnected shared pathways and cycle ways to maximise access to key destinations and facilities;
- K2 Design and deliver pathways, walking trails and other pedestrian movement infrastructure to maximise access, inclusion and mobility to meet the needs of all community members;
- K3 Provide signage, public amenities and playgrounds to encourage usage and enjoyment of public areas;
- K4 Repair and maintain wharves, jetties, boat ramps and ocean baths to increase ease of access to and enjoyment of natural waterways and foreshores; and
- L1 Promote healthy living and ensure sport, leisure, recreation and aquatic facilities and open spaces are

well maintained and activated.

Relevant community indicators are:

- Access to transport - walking and cycling;
- Participation in sport, recreation and community life;
 - sports and recreational activities; and
 - access and enjoyment of local environment;
- Conservation and protection of natural areas:
 - quality of the local environment; and
 - voluntary land conservation in perpetuity;
- Governance, consultation and service delivery:
 - Condition of assets and infrastructure.

Sitting beside this Plan is the NSW State Government's Central Coast Regional Plan (NSW Planning & Environment 2016). That Plan predicts the population of the Central Coast will grow from 339,550 in 2016 to 415,050 by 2036, an increase of 22.2%.

The section that sets out the Vision for the Plan notes:

"A 'green grid' criss-crosses the region allowing residents to connect to a network of open space, natural areas and recreational facilities. Protecting the region's coastal areas, water resources and biodiversity has assured the lifestyles, economic prosperity and environmental health of the region." (p8)

As well, it notes that "Tourism and recreation have become mainstays of the economy" (p8) and that "The region's unique and productive natural environment, including its coastline, will support growth in the tourism, lifestyle housing, agriculture and resource sectors" (p15). Further, "There are ongoing opportunities to promote the tourism appeal of the region's bush, beaches and waterways" (p22).

The plan has four Goals, and Goal 2 is "Protect the natural environment and manage the use of agricultural and resource lands". A key action for this Goal is Action 12.4:

"Strengthen the Coastal Open Space System by expanding its links and extending new corridors to balance growth in the north of the region and protect the network of natural areas across the region." (p35)

Actions 14.1-14.3 are

14.1 Manage the risks of climate change and improve the region's resilience to hazards such as flooding, coastal erosion, bushfire, mine subsidence and land contamination.

14.2 Review and update floodplain risk and coastal management programs to manage flood risk and protect the coast, particularly where urban growth is being investigated.

14.3 Incorporate new knowledge on regional climate projections and related cumulative impacts in local plans for new urban development.

Goal 3 is "Well-connected communities and attractive lifestyles", and the relevant actions are:

15.3 Plan for communities to be better connected by an integrated transport system that prioritises safe walking, cycling and public transport.

18.3 Enhance the amenity and attractiveness of existing places.

18.5 Implement strategies to invest in open space, sporting and recreational infrastructure.

Council's biodiversity strategy (Central Coast Council 2020) gives special attention to its coastal reserves and their important role in conserving and enhancing biodiversity.

Under the section "Iconic and Unique Species" it notes:

"... our estuaries and coastal lakes are immensely important for the fisheries industry" (p14).

As noted in Section 1, the Strategy states that:

"Marine and estuarine habitats (tidal sandflat, tidal mudflat, lake, rocky shores, beach, and ocean) are used by a wide range of resident and migratory wading, estuarine, ocean and shore birds." (p16)

The salt marshes of the lakes get special attention:

"Coastal saltmarsh is a threatened ecological community. The on-going threats to saltmarsh include illegal in-filling, grazing, weed invasion and recreational vehicles." (p18)

"Saltmarsh protects the coastline from storm erosion and acid sulphate soil exposure. Saltmarsh provides a valuable source of food in the form of crabs, molluscs and many insects for wading birds, many of which are migratory." (p19)

The desired outcome of the strategy is to:

"... protect and enhance the landscape and biodiversity values of the Central Coast, which includes maintaining functional connections between areas of habitat, maintaining core habitat as well as restoring marginal habitat, preserving threatened and iconic species and ecological communities, preserving significant Aboriginal cultural places, and protecting the scenic amenity of the region." (p25)

The strategy identifies the following key threats to biodiversity:

- Weed invasion;
- Grazing or predation by feral or domestic animals;
- Firewood collection;
- Rubbish dumping; and
- Clearing of native vegetation.

The goals in that strategy relevant here are:

1.2.1 - Implement site management plans to rehabilitate degraded bushland and coastal ecosystems;

1.2.2 - Prepare a policy for natural area encroachment management, and resource and implement a program to identify and manage threats to natural areas from

encroachment

A key specific action related to 1.2.1 is "fencing, gates and access control to prevent dumping, damaging activities and encroachment" (p37).

The strategy also notes the importance of connectivity and biodiversity corridors. It notes

"Maintaining and restoring connections between protected areas and areas of high biodiversity value are vital to landscape health and biodiversity of the region." (p60).

Whilst the lakes were not identified as a biodiversity corridor in the strategy, given the biodiversity significance of estuarine and foreshore vegetation, improving the connectivity around the lakes should be explored.

Council has adopted a bike plan (Bitzios Consulting and Zwart Transport Planning 2019) which, whilst focusing primarily on cycling as a mode of transport, one of the five priorities relate to recreation and tourism routes. This focus on cycling as a mode of transport rather than as a recreational pursuit is reflected in shared path hierarchy where all the three levels are about connecting places with no mention of recreational opportunities. The plan notes that recreational and tourist cycling connections are part of the plan, and recognises that there is community pressure to build missing links in the recreational focused dual use paths especially around the lakes, it states:

"There are a number of missing links along these routes and priority links would serve multiple purposes such as connecting to centres, schools and public transport as well as contributing to the completion of the NSW Coastline Cycleway. Lower priority links would be those serving recreational trips only and lower density populations."

And:

"Whilst there was considerable community feedback requesting completion of a number of missing links in the lake routes, Council's priorities should be communicated to the community so there is better understanding on what Council is trying to achieve in terms of prioritising utility and commuting trips over solely recreational trips." (p82)

This is unfortunate and undervalues the benefits of outdoor recreation and the popularity of cycling for recreation and exercise.

Council has a Disability Inclusion Access Plan (Central Coast Council 2021). Focus Area 2 is Liveable Communities, and the plan notes that:

"On the Central Coast we love our beaches, waterways and bushland. People with disability want better access to these natural places. The beaches that are accessible are highly valued." (p24)

Focus area's 2 objective is – "To make the Central Coast more accessible, inclusive and liveable".

The key relevant actions that Council has carried out to date are:

- Beach matting provided at Umina Beach, Avoca Beach and Toowoan Bay, and
- Beach wheelchairs provided for use at 12 of beaches.

A key action for the proceeding four years is:

LC1.1 Continue to make beaches more accessible with installation of beach matting and other accessible features. (p27).

3.1.2. Tuggerah Lakes foreshore restoration works - community survey.

Between June 2020 and March 2023, the Central Coast Council undertook a series of projects around the Tuggerah Lakes estuary and catchment, aimed at restoring the quality of ecosystems and improving the water quality of the catchment. These projects focused on the foreshores, saltmarsh areas, riparian zones and streambanks. At the same time these works were being carried out, Council conducted a community survey to better understand how the foreshore areas were used and how the Tuggerah Lakes were valued.

On January 11 2023, as part of the consulting work for this study, the comments and subsequent 'like' and 'dislikes' submitted on that webpage were analysed. Three broad headings were used in this analysis: issues raised, activities and uses reported, and additional comments. Figures 2 to 4 below summarise that analysis for all three lakes. This analysis should not be seen as quantitatively or necessarily representative of the Central Coast community, but is a useful snap shot of community views about the lakes and will be used, along with other inputs, to draw some conclusions.

The concerns raised most frequently was the problems related to wrack, which included loss of visual amenity, odours, problems of access the waterbody and loss of property values. Concern about weeds was the next most important concern, mostly for environmental reasons. The next concern related to the impacts of restoring the salt marsh communities and other native vegetation, as well as protecting existing native vegetation. The concern was about reducing access to the waterbody, mostly from residents who back onto the lakes. Submitters were evenly divided in opposing restoration and protection, and supporting it.

The main activities engaged in were land-based activities that occurred on the foreshore, notably cycling and walking, with the main water-based activity being kayaking. Swimming and related activities were only reported by less that 3% of submitters.

The most reported comment was a desire to either extend the existing multi purpose (i.e. shared) path, or construct a new one where absent. This reflects the popularity of cycling and walking (and running) as activities on the existing shared paths. Interestingly, in analysing the comments, support for restoration was about 7 times higher than opposition to it. The next most important issue was a request to increase access to the foreshore and lakes for residents who do not have direct access. The need for better drainage to reduce flooding in the foreshore was a particular concern for Lake Tuggerah. residents

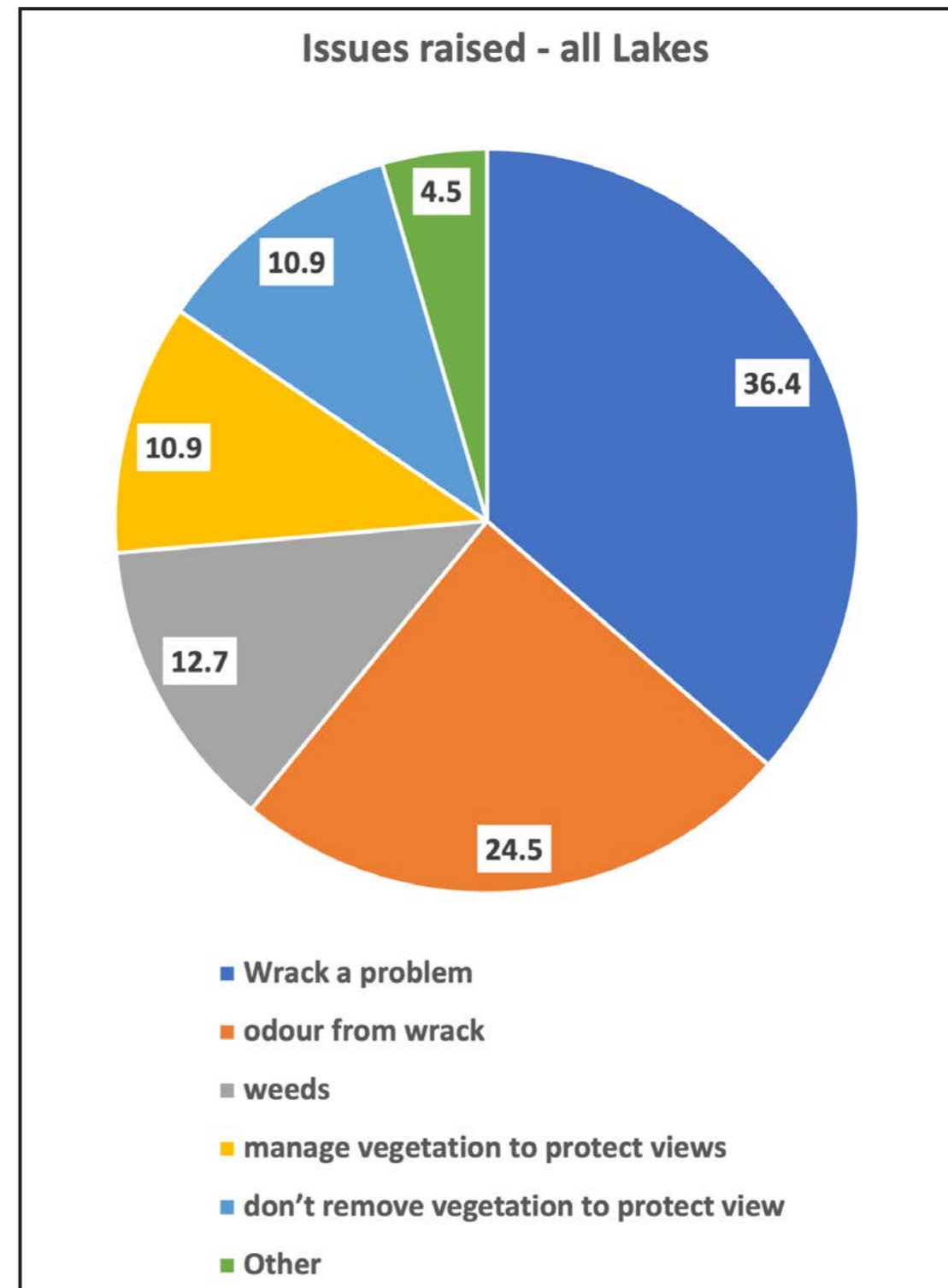


Figure 2: Issues raised in the submissions for all lakes

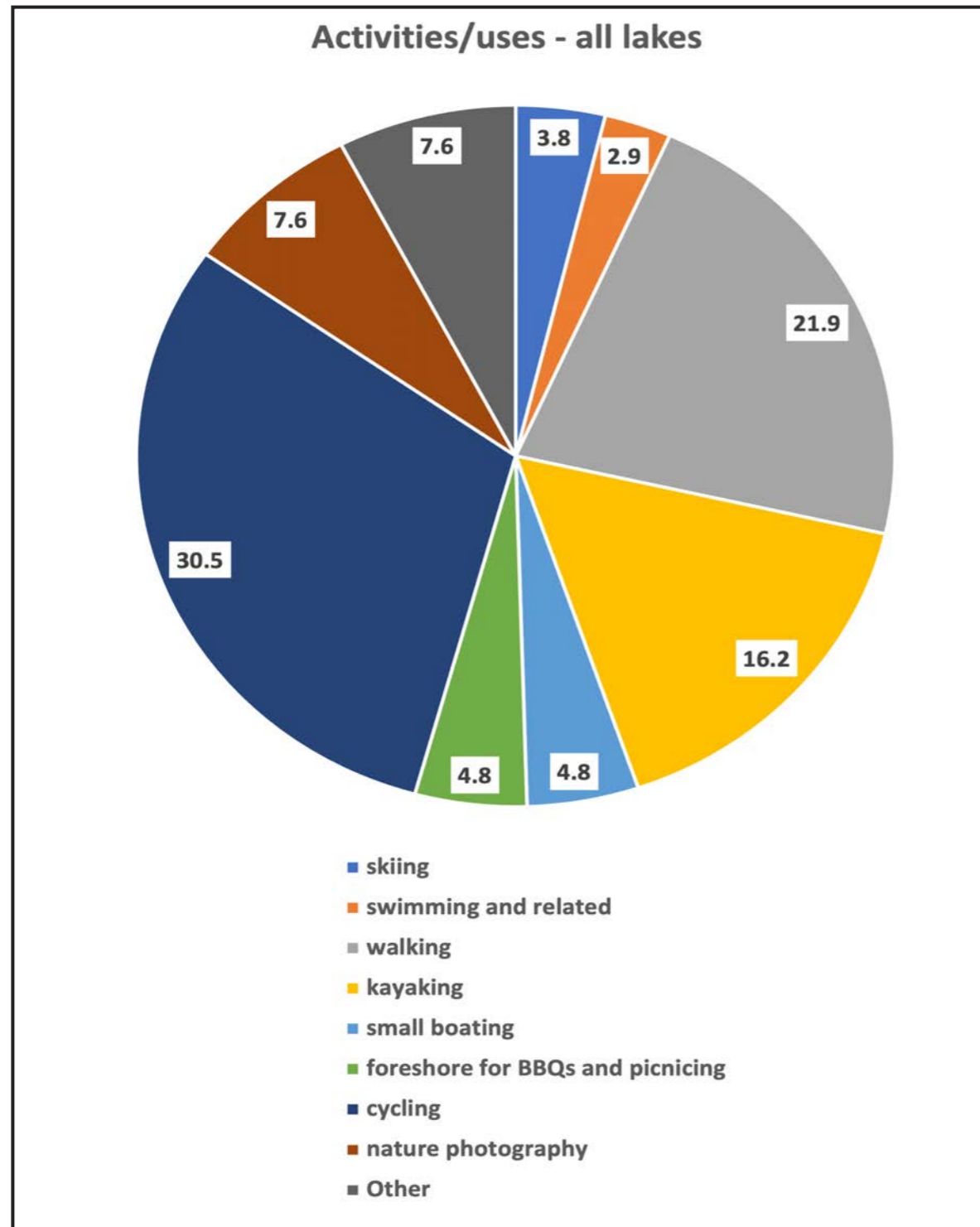


Figure 3: Activities and uses for all lakes.

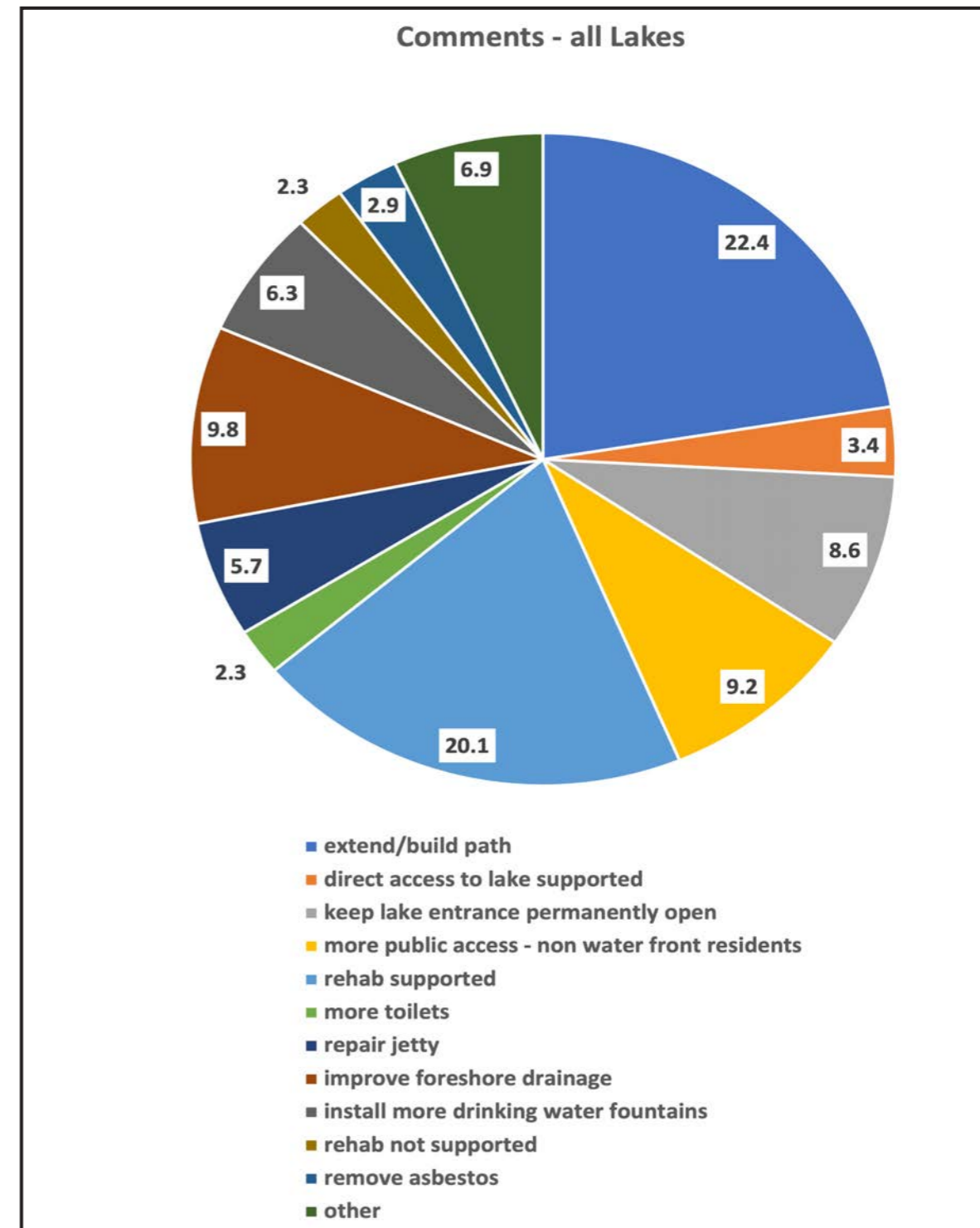


Figure 4: Additional comments for all lakes

3.1.3 Wrack

As noted in Section 3.1.2, the presence and negative impacts of wrack on the lakes' foreshores was the most commonly raised issue in the comments, 'likes' and 'dislikes' in the community survey associated with the Tuggerah Lakes foreshore restoration works.

Wrack refers to algae or seagrass detached from reefs or the seabed that is often washed up on to shorelines. It is a natural process caused by strong winds, waves and tidal currents and can be increased by storms (Menicagli, De Battisti et al. 2022) and human activity. Several studies have estimated that between 15-20% of seagrass ends up as wrack (Pan, Flindt et al. 2021). Wrack has a number of important natural functions, including: stabilising beaches subject to eroding forces, increasing nutrient content of foreshore soil, and providing habitat for a range of invertebrates species, which in turn provides food for waterbirds and fish species that inhabit the surf zone (Department of Environment Conservation 2007, Paice and Chambers 2016).

Wrack has a number of impacts on beach users and residents as it can trap human marine litter, mostly plastic (Battistia, Fanellib et al. 2020), and produces unpleasant odours as it decomposes. This negatively impacts on amenity of local residents, reduces recreational activities and reduces tourism numbers (Pan, Flindt et al. 2021). The most common response to these concerns is to remove wrack from the beaches. Whilst this addresses concerns of users and residents, it will have an inevitable environmental impact through a direct loss of biodiversity. As well, wrack is part of the natural nutrient and organic matter cycle of the water body. Removing wrack removes those nutrients and organic matter from the cycle, which will have longer term consequences.

Managing wrack is a difficult problem for Council to address, with the environmental benefits of wrack needing to be weighed up against negative human impacts.

3.1.4 Tuggerah Lakes Estuary Management Plan

In 2006, the then Wyong Council adopted The Tuggerah Lakes Estuary Management Plan (TLEMP) which was developed over a nine-year period. This plan provides the

strategic direction for the management of the Tuggerah Lakes estuary and its catchment. It set seven attribute goals as part of the vision for the lakes, one of which is relevant to this study:

Public facilities - Excellent recreational facilities at access points. (p8)

It also set six primary objectives, two of which are relevant to this study:

- Ensure that human activities can take place while protecting cultural heritage and enhancing soil, water and ecosystem health.
- Ensure that the social and economic needs of the community are met while protecting the environment of the coastal zone.

Within this main plan was a specific Socio-economic Action Plan, with the first of five goals being:

1. Improve recreational facilities around the lakes and creeks (p20)

Two of the six other Action Plan actions are:

Provide better facilities in foreshore recreation areas,

Maintain foreshore recreation areas and beaches. (p23)

3.1.5 2021 "Our Coast, Our Waterways" Community survey

In 2021 Central Coast Council carried out a survey of residents titled "Our Coast, Our Waterways" community survey. The purpose of the study was to "understand the value our community places on waterways, their uses, opinions on the current state and management practices and their opinions on future management." (Brown-Mason, McCann et al. 2021, 4). A total of 1,168 people responded to the survey. Waterways included the beaches, lagoons, lakes and rivers. The survey data in the main report made no distinction between the marine coast, the lagoons or the lakes. Council also produced two separate 'mini' reports that had separate results for residents of Tuggerah Lakes and Lake Macquarie.

Some of the key findings from the survey are:

- % respondents said they used or visited Council's waterways
 - 96% of all respondents,
 - 100% of Tuggerah Lake respondents, and
 - 100% of Lake Macquarie respondents;
- % respondents who said they visit or use a waterway at least weekly
 - 84% of all respondents (40% said they visited daily),
 - 80% of Tuggerah Lake respondents (33% said they visited daily), and
 - 82% of Lake Macquarie respondents (36% said they visited daily);
- When asked are waterways a significant reason they choose to live on the Central Coast
 - 95% of all respondents either strongly agreed (83%) or agreed (12%);
 - 96% of Tuggerah Lake respondents either (82%) strongly agreed or agreed (14%) and
 - 97% of Lake Macquarie respondents either (89%) strongly agreed or agreed (8%);
- When asked do the waterways contribute to their personal health and wellbeing
 - 98% of all respondents said they either strongly agree (91%) or somewhat agree (7%),
 - 99% of Tuggerah Lake respondents said they either strongly agree (92%) or somewhat agree (7%), and
 - 97% of Lake Macquarie respondents said they either strongly agree (89%) or somewhat agree (8%);

- Of the 1,168 respondents, 844 (72%) said they used one of the four lakes with the three most popular locations being
 - The Entrance (27%),
 - Tuggerah Lake (27%) and
 - Lake Macquarie (17%);
- When asked should more be done to enhance access to waterways
 - 68% of all respondents said they either strongly agree (43%) or somewhat agree (25%),
 - 75% of Tuggerah Lake respondents said they either strongly agree (51%) or somewhat agree (24%), and
 - 86% of Lake Macquarie respondents said they either strongly agree (61%) or somewhat agree (25%);
- When asked what they valued most about the waterways, the top four responses were the same for all users as shown below. The % for all users, Tuggerah Lakes and Lake Macquarie are shown in that order
 - Recreational opportunities and access to waterways – 28%, 26%, 31%;
 - Beauty & aesthetics – 16%, 17%, 15%;
 - Cleanliness of waterways – 13%, 12%, 11%; and
 - Environmental & natural amenity – 11%, 13%, 10%;
- When asked how satisfied there were with the improvement of lakes, estuaries and lagoons (including foreshores, rivers, creeks and catchments), the following results were:
 - For all users only 23% said they were either extremely satisfied (2%) or somewhat satisfied (21%) compared to 44% being either extremely dissatisfied (20%) or somewhat dissatisfied (24%),
 - For Tuggerah Lakes users only 24% said they were either

extremely satisfied (2%) or somewhat satisfied (22%) compared to 51% being either extremely dissatisfied (23%) or somewhat dissatisfied (28%), and

- For Lake Macquarie users only 24% said they were either extremely satisfied (3%) or somewhat satisfied (21%) compared to 46% being either extremely dissatisfied (22%) or somewhat dissatisfied (24%)

The survey also asked what should the focus areas for the Coastal Management Programs (CMP) be, with the results shown in Figure 5 on the following page. It shows the results for all users and separately for Tuggerah Lakes and Lake Macquarie users. The results are uniform across all respondents with the top focus areas being:

- Reducing pollutant loads (sediment, nutrients and microbes) entering waterways;
- Improving and maintain water quality;
- Educating the community on their role in maintaining and improving the health of waterways;
- Managing coastal erosion & other hazards such as tidal inundation and flooding; and
- A range of responses related to protecting the natural environment of the waterways.

Figure 6 shows the percent of respondents who carrying out different recreational activities at least once a month. It shows the results for all users and separately for Tuggerah Lakes and Lake Macquarie users. The results are uniform across all respondents with the top focus areas being:

- Walking cycling or running in foreshore,
- Enjoying nature,
- Swimming, and
- Picnics, BBQs in foreshore.

The popularity of the first and forth activities highlight the need to provide good quality infrastructure that supports

these activities. The popularity of enjoying nature highlights the value of the natural environment and that its protection and enhancement should be a priority. The popularity of swimming has resonance with key areas the CMPs should focus on – the top two being about water quality.

The importance of the waterways for recreation and as natural features is also reflected in the responses to the survey question, which asked what respondents value about the waterways, which is shown in Figure 7.

As can be seen, 'Recreational opportunities and access to waterways' is by far the most important value, with 'Environmental & natural amenity' and 'Beauty & aesthetics' the next most important.

Concerns about enough access to the waterways is a relatively more important issue for users on Tuggerah Lakes and Lake Macquarie compared to other respondents. If the Tuggerah Lakes and Lake Macquarie respondents are taken out of the 'all respondents' calculations, the % of respondents who said they either strongly agree or somewhat agree drops to 60%, compared to 75% for Tuggerah Lakes and 86% Lake Macquarie. The reasons for this difference are likely to be the relatively long stretches of foreshore where there is no public access to the waterbody (no foreshore) and the lack of good quality access points with basic facilities. The data on proximity to the waterways also supports this, highlighting the need for an adequate number of good quality access points with basic facilities - with 83% of all users not having direct access to the foreshore and waterway.

This matter is addressed in the recommendations.

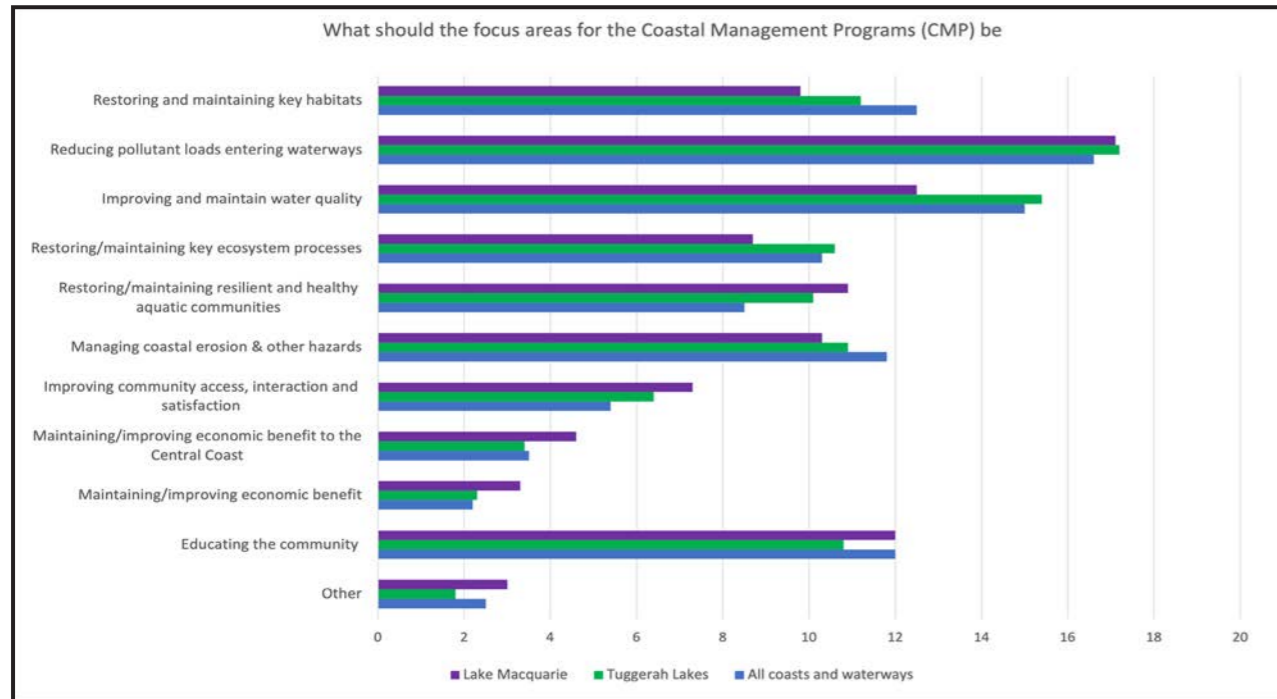


Figure 5: Survey results for the question "What should the focus areas for the Coastal Management Programs (CMP) be?"

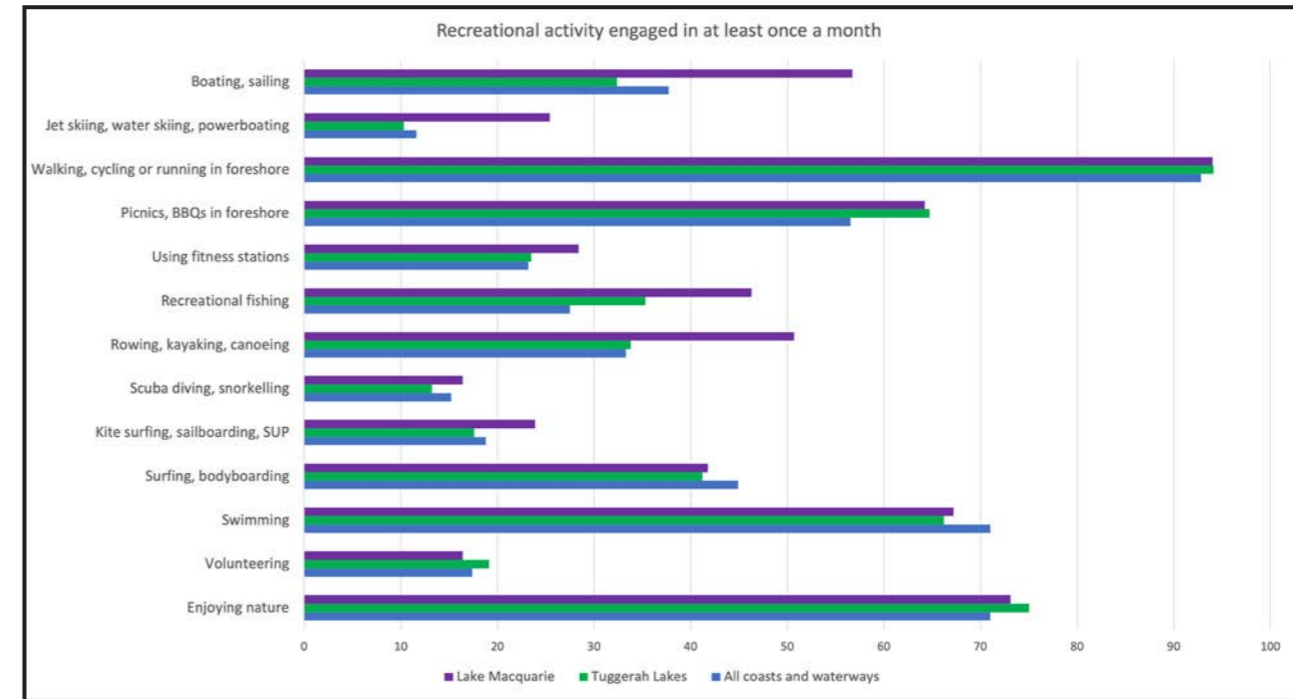


Figure 6: Activities carried out by survey respondents at least once a year

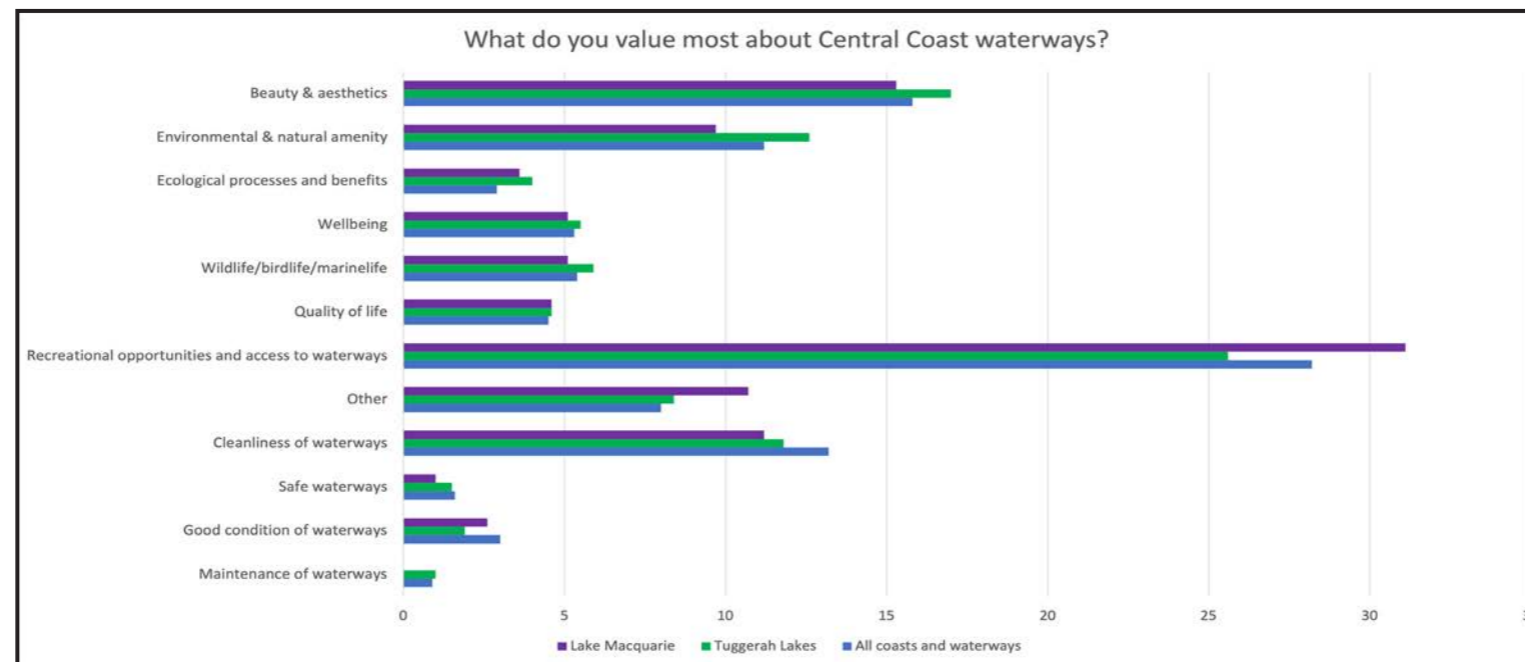


Figure 7: Most valued aspects of the Central Coast waterways.

3.1.6 Tuggerah Lakes Estuary Coastal Management Program Scoping Study

In 2021 Council released the "Tuggerah Lakes Estuary Coastal Management Program Scoping Study" (McCann, Donaldson et al. 2021) which set nine broad objectives, the second one being:

- b) Support community connection with and use of the estuary, in an ecologically sustainable and culturally sensitive manner.

3.1.7 Key conclusions

The recreational value of the Tuggerah Lakes is significant, with 96% of residents either use or visit Council's waterways with 84% visiting or using a waterway at least weekly, and 73% carrying out some form of recreation in or around the lakes. This is recognised in the key Council policy documents relevant to the lakes.

The most important value that the lakes offer to the community is recreational opportunities and access to waterways. The most popular recreational activities associated with the lakes are likely to be walking, cycling and running, picnicking, enjoying nature and boating. The existing shared paths around some sections of the lakes are very popular, and there is demand from the community to extend the existing paths and construct new ones.

Nearly 70% of residents believe that more should be done to enhance access to waterways for those who do not have direct access.

The key management issues include:

- The management of wrack to reduce social impacts whilst balancing its environmental benefits;
- Whilst there is strong community recognition of the environmental values of the lakes, and strong support for restoration of native vegetation including salt marshes, there is resistance from some residents who have direct access to the foreshore and waterways to restoration;
- There is strong demand to provide more recreational

facilities as well as better public access to the lakes, but this needs to be done in an environmentally sustainable manner; and

- More effort is needed to better manage flooding in the foreshore areas.

3.2 Summary of the relevant background information from the Open Coast and Coastal Lagoons report

A comprehensive literature review was carried out as part of the Stage 1 report, which was a key input into developing our recommendations with respect to improving the recreational and social values of Central Coast Council's coast, including the open coast, lagoons and the lakes. A summary of the full literature review is provided here as context.

The review started with an analysis of the benefits of outdoor recreation in general and then recreation at the coast. This was followed by a discussion of how beaches are used based on four studies that had data from surveys of visitors to various beaches in Australia. The next part discussed three issues: the importance of users' experiences when participating in outdoor recreation; the importance of providing a range of opportunities for participating in outdoor recreation; and the idea that participating in outdoor recreation enhances the sense of place an individual feels for the location where they pursue and outdoor recreation activity.

The key findings of the literature review were as follows.

- Social and economic benefits - outdoor recreation offers a range of important social and economic benefits;
- The importance of the coast for outdoor recreation - the Coastal Zone and Council Reserves are the most important resource for people to pursue outdoor recreation;
- When users visit the beach - usage of the beach and coastal zone is fairly consistent throughout the day with mornings marginally preferred over the afternoons, and

early mornings preferred to late afternoon/evenings;

- Activities engaged in at the beach:
 - the three most reported uses of the beach are for walking, swimming and sitting and relaxing;
 - highly active pursuits (running and cycling) are underreported with participation in cycling likely to be similar to swimming;
 - the lack of hard coastal paths through or adjacent to the foreshore in the Central Coast Council area limits the use of the coast for cycling and running and represents a future opportunity to add recreational value to the coast;
 - participation in activities that require special features or controls - surfing, fishing and walking the dog - will be higher in those specific beaches;
- Mode of transport to get to the beach:
 - arrivals by car is by far the most popular mode;
 - facilitating cycling at the coast would attract more users to the coast and could reduce the number of people who arrive by car;
 - during the field trip it was observed that several carparks have insufficient number of bays to manage the number of arrivals during peak periods;
- Where beach users come from - Popular beaches with significant infrastructure, including commercial, have a higher proportion of visitors from outside the local area compared to the typically local beaches with minimal infrastructure;
- Visitation patterns at popular beaches with significant infrastructure - the commercial and grassed areas associated with these beaches are well used with up to 40% of visitors using these areas at any one time;
- Frequency of visiting beaches - between 50-70% of local users visit the beach at least 2-3 times a week;

- Importance of built infrastructure – the built infrastructure that users find to be the most important are:

- beach close to carpark;
- lifesaving patrol;
- footpaths/shared paths;
- amenities (toilet, showers, BBQs etc).
- As noted previously, the lack of hard coastal paths in the Central Coast Council area represents a future opportunity to add recreational value to the coast.

- Importance of users experiences - an important aim in providing outdoor recreation should be to enhance the users' experiences. A positive experience will encourage people to continue that activity at a specific location, and will add to a user's attachment to that place;

- Place attachment:

- increasing place attachment will add value to the coast, lead to better community involvement in management, and increase participation in outdoor recreation;
- increasing place attachment will be particularly helpful for those sites that are more remote, less developed and less visited;
- changing the sense of place through increasing facilities and infrastructure will create tensions between those whose sense of place favours no change and those who want to see change. In these cases, introducing change will require careful and considered consultation. This is most likely to be the case for those coastal areas where houses directly abut the beach and foreshore;

- Enhancing users' experiences:

- the infrastructure provided should enhance the user's experience by being a good quality;
- the activity itself is important in deriving pleasure from the experience therefore outdoor recreation

planners need to provide for a diversity of recreation opportunities; and

- strong community involvement in planning for outdoor recreation is essential to ensure the range of users' experiences are catered for and that those experiences are good quality;
- Recreation Opportunity Spectrum (ROS):
- ROS is a useful way to conceptualise the planning and management of outdoor recreation; and
- it involves providing a diversity of recreation

opportunities based upon a combination of biophysical, social, and managerial attributes appealing to a wide range of people and therefore maximising community involvement in outdoor recreation;

- Disabled access to the beach – key barriers to disabled people having greater access to the beach are:
 - lack of ramps or mats making difficult getting across the sand;
 - lack of suitable change and toilet facilities; and
 - lack of accessible car parking.



Figure 8: Seating provided within the public foreshore reserve.

4. Methodology

The main method adopted in the study was the development and application of an audit of the coastline, which identified and mapped recreational infrastructure and, where possible, specific recreational uses. The audit findings were then interpreted to gain a broader picture and understanding of the recreational use of the coast.

An action research approach was adopted, comprising five key stages that can be understood to be largely sequential, with some overlap due to the iterative and responsive nature of the research approach. They included:

- Desktop Study;
- Site Visits;
- Desktop Mapping;
- Consultation and Verification; and
- Analysis and Classification.

5. Coastal Recreational Use Audit Tool

Table 1 shows the full list of recreational infrastructure and uses mapped in the study. As it was developed for the Stage 1 study of the open coast, some of the icons are not relevant to the lakes: for example surfing and surf life saving clubs. All paths within the foreshore were identified and mapped, including both shared-use and walking paths. Individual beach/foreshore access paths were also mapped and are available in GIS format, however it was not practical to show these paths in the final maps produced for this report.





































Black icons are used to indicate key recreational infrastructure, arranged in a number of sub-categories. These categories of infrastructure can be used as general proxies for the presence of different recreational uses.

Blue icons are used to identify specific locations where specialist recreational uses are known to occur. These icons are not used to identify more general uses (specifically water-base use such as swimming, as well as other beach and park-based uses), which are assumed to occur along the majority of the study area.

Discrete areas of the coast that had been explicitly designated for (or sometimes to prohibit) certain recreational uses are identified through hatchings of various designs and colours.

The Coastal Recreational Use Audit Tool was applied to audit the entire foreshore within the Tuggerah Lakes study area. Two examples are provided in the following pages - shared paths and boat launching - with the full results found in the maps in Section 7.

Table 1. Mapped infrastructure and uses

| Paths | | | |
|--------------------------------------|---|--|--|
| Paths |  Shared use path |  Walking path |  Beach/foreshore access path |
| Infrastructure | | | |
| Beachside/park access and facilities |  Covered picnic tables |  Showers |  Bike racks |
| |  BBQs |  Public toilets |  Car parking |
| Active recreation facilities |  Skate park |  Playground |  Fitness equipment |
| |  Swimming pool |  Beach volleyball |  Basketball court/ring |
| Boating facilities |  Jetty |  Boat ramp |  Boat moorings |
| |  Water sports club | | |
| Community and commercial facilities |  Cafe/kiosk |  Shopping area |  Community centre |
| | | | |
| Attractions |  Lookout |  Cultural heritage site |  Public artwork |
| | | | |
| Safety/rescue organisations |  Surf Life Saving (SLS) club |  SLS observation tower |  Sea rescue |
| | | | |
| Use Locations | | | |
| Use locations |  Surfing |  Diving |  Fishing |
| |  Kite/wind surfing |  Snorkeling |  Kayaking/canoeing/stand up paddle boarding |
| | | | |
| Designated Use Areas | | | |
| Designated beaches |  Dog Exercise |  SLS patrolled beach | |
| | | | |

Shared Paths

Paths suitable for use by both pedestrians and cyclists are one of the most significant pieces of recreational infrastructure along the coastline and foreshore areas. Shared paths serve a range of functions: providing largely uninterrupted transport links between coastal nodes and other significant suburban locations - hence facilitating physical activity both through transport and recreational use - while providing aesthetic and educational experiences at various intervals.

In Stage 1, the provision of coastal shared paths was the most salient difference between the Central Coast and Perth coastlines: the latter being far better provided with this recreational resource, with the only significant shared path on the Central Coast running from Ettalong Wharf to Ocean Beach. Figure 9 shows that shared paths are much better provided for in the Tuggerah Lakes study area. While Lake Macquarie and Munmorah have only single short sections, continuous paths run along the extent of the NE bank of Budgewoi Lake and the SW bank of Tuggerah Lake. The former runs approximately 8km from Pacific Highway in San Remo to Budgewoi Point (Figure 10). The latter path, running from The Entrance to Chittaway Bay (Figure 11), is the longest in the study area at approximately 10km, and continues North of the bridge for several more kms. Additional smaller paths are found along Tuggerawong and Canton Beach.



Figure 9: Distribution of shared paths along the Tuggerah Lakes study area.



Figure 10: A shared path runs along the northern bank of Budgewoi Lake from Pacific Highway in San Remo to Budgewoi Point.

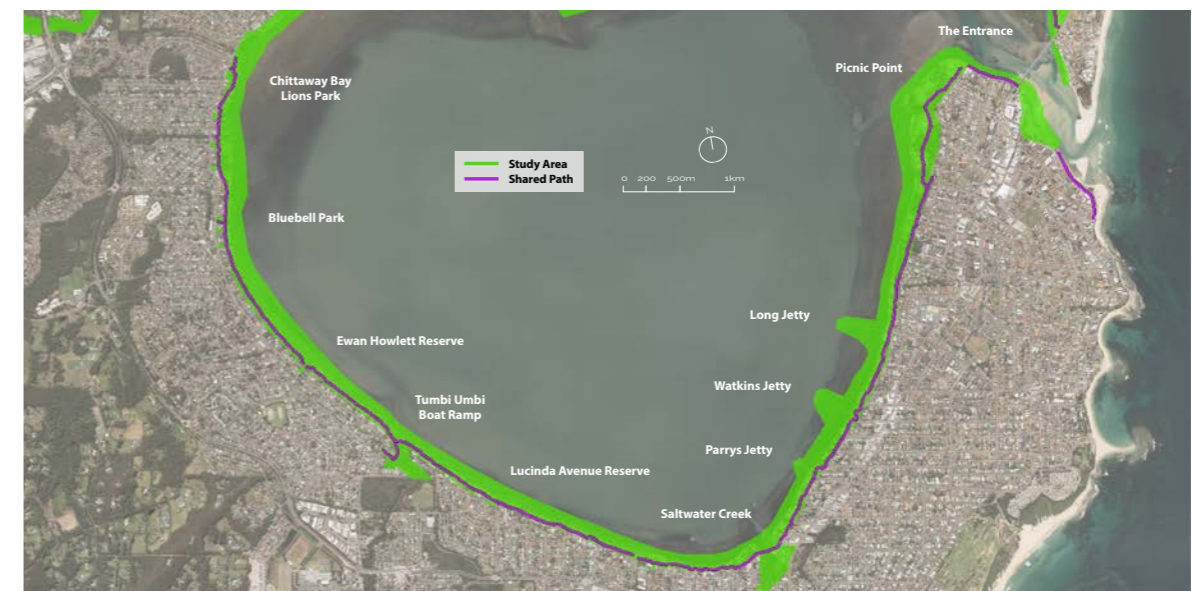


Figure 11: The longest continuous shared path in the study area runs along Tuggerah Lake between The Entrance and Chittaway Bay.



Figure 14: Aerial view of the Budgewoi Lake shared path running through Green Point Reserve.



Figure 12: Pedestrian bridges ensure the continuity of shared paths despite watercourse inlets, such as this one over Saltwater Creek.

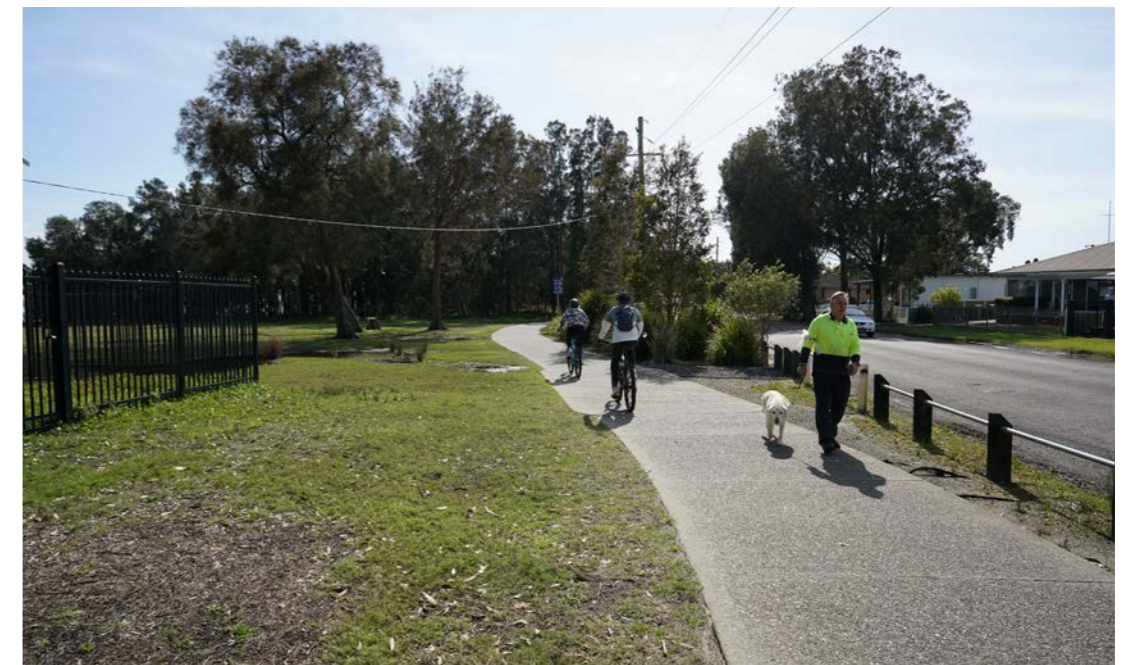


Figure 13: Shared paths allow use by both cyclists and pedestrians, and in this case dog walkers.

Boating

The presence of boat launching facilities, or boat ramps, was another significant difference between the coastline and lakes areas of the Central Coast. Only three ramps providing boat access straight into the ocean were identified in Stage 1, with a further 5 in the sheltered near-shore areas of Brisbane Waters and Patonga. Not surprisingly, given the lakes are more protected than the coastline, boat launching ramps are far more common in the Tuggerah Lakes study area.

Figure 15 shows that each of the 4 lakes are well provided with lake access points for boating. Even in these more sheltered waters, ramps are typically still situated in inlet areas. Several additional locations were not mapped, such as Tom Burke Reserve in Figure 16, as they contain smaller vehicular access ramps suitable only for launching boards and small non-motorised boats.

Most ramps, particularly those recently developed and of higher quality, have adjacent jetties (Figure 17). Dedicated fish cleaning stations, such as that found at Slade Park in Figure 18, are provided for recreational fishers, and are considered proxies for this recreational use. Several ramps were observed to be of poor quality, and are discussed in the recommendations for upgrades in Section 8.



Figure 15: Distribution of boat launching ramps along the Central Coast.



Figure 16: A small ramp at Tom Burke Reserve provides vehicular access to remove wrack, and could also be used for launching boards.



Figure 17: High quality boat ramp and adjacent jetty at San Remo.



Figure 18: A fish cleaning station lies directly adjacent to Slade Park Boat Ramp, with fishermen visible on the jetty.

6. Coastal Recreational Use Classification Framework

A Coastal Recreational Use Classification Framework was developed in Stage 1 of this study, which enabled the entirety of the coast to be categorized into either a node or a connector. Nodes are developed areas within a foreshore reserve that have a variety of infrastructure facilitating a range of passive and active recreation activities.

Four types of nodes are recognised:

- Beach/Foreshore Access Nodes – provide for only beach/foreshore and water-based uses;
- Minor Activity Nodes – provide additional park-based active and passive uses, with greater capacity for specialist water-based use;
- Moderate Activity Nodes – provide a greater variety of park-based recreation, including commercial and indoor uses, however may restrict specialist water-based uses;
- Major Activity Nodes – provide more extensive commercial opportunities and are typically used for tourism purposes.

Connectors are the foreshore and beach areas that act as links between nodes. They have a range of values, including ecosystem, recreational, social, aesthetic, wildlife corridors and - where there is no foreshore reserve (i.e. no public access) - private economic. Connectors can be well vegetated, cleared of native vegetation and anything in between. They are mostly free of infrastructure, but some areas have a formal path or track running through the foreshore, perpendicular paths with access to the beach, and the occasional lookout or seat.

Seven types of coastal connectors are recognised, with the first five contained with public reserves, and the last two contained on private land with no public access:

- Conservation Connectors – well vegetated areas within conservation reserves and well separated from urban areas; facilitating primarily land based recreation with high aesthetic, nature and wilderness experiences;
- Landscape connectors – well vegetated foreshore reserves with limited infrastructure, set within urban areas. They have limited beach and water-based recreation, however may provide unique aesthetic, nature and wilderness experiences;
- Shared Path Connectors – foreshore reserves with native vegetation similar to Landscape Connectors, but typically contain shared paths and supporting infrastructure within the reserve that facilitate a range of additional recreational uses, along with enhanced aesthetic and educational experiences;
- Urban Connectors – foreshore areas with enhanced water and beach and path-based uses, however little if any native vegetation, thus negligible nature and wilderness experiences. Either a road or path provides a hard edge to the adjacent residential areas;
- Local Connectors – with houses directly abutting, these foreshore reserve areas tend to be narrow and with limited native vegetation. No hard edge separates the houses from the foreshore, thus providing beach and water use primarily to local residents;
- Residential Connectors – set within urban areas with no public foreshore and private property directly abutting the water, thus providing beach and water use exclusively to residents of these private properties; and
- Rural Residential Connectors - set within rural areas with no public foreshore and private property directly abutting the water, thus providing beach and water use exclusively to residents of these private properties, while often conserving areas of native vegetation.

The number of, examples of and colour code for each of the nodes and connector types found in the lakes is shown in Table 2.

Table 2. Classification Typology Examples

| Type | #N | Examples |
|-----------------------------|----|---|
| Beach/Foreshore Access Node | 22 | Garema Road Boat Ramp, Alister Avenue Reserve, San Remo Boat Ramp. |
| Minor Activity Node | 34 | Vales Point, Tom Burke Reserve, John Peter Howard Reserve, Green Point Reserve, Canton Beach Reserve, Picnic Point Reserve, Long Jetty. |
| Moderate Activity Node | 12 | Summerland Point Reserve, Colongra Bay Reserve, North Lakes Oval, Wallarah Point Peace Park. |
| Major Activity Node | 1 | The Entrance Waterfront. |
| Conservation Connector | 14 | Point Wolstoncroft, Colongra Swamp, Budgewoi Peninsula, Toukley Golf Club, Wyrabalong National Park. |
| Landscape Connector | 20 | Yellow Rock, Orooloo Point, Dunkey Island, Casuarina Reserve. |
| Shared Path Connector | 25 | Buff Point Avenue Foreshore, Tuggerawang Road Foreshore, Lakedge Avenue Foreshore. |
| Urban Connector | 15 | The Entrance Road Foreshore, Wolseley Avenue Foreshore, South Tacoma Road Foreshore, Long Jetty Foreshore. |
| Local Connector | 31 | Frying Pan Point, Sunrise Avenue Foreshore, Panorama Avenue Foreshore, Kalua Drive Foreshore. |
| Residential Connector | 29 | Summerland Point Foreshore, Greenacre Avenue Foreshore, Main Road Foreshore. |
| Rural Residential Connector | 3 | Black Neds Point, Colongra Point, Wyong River Foreshore. |