

# Transport for NSW

## Regional Boating Plan

### Lake Macquarie - Tuggerah Lakes Region

*Consultation Draft*

June 2014



Transport for NSW  
18 Lee Street  
Chippendale NSW 2008  
Postal address: PO Box K659 Haymarket NSW  
1240 Internet: [www.transport.nsw.gov.au](http://www.transport.nsw.gov.au)  
Email: [mmc@transport.nsw.gov.au](mailto:mmc@transport.nsw.gov.au)

ISBN Register: 978-1-922030-68-9

© COPYRIGHT STATE OF NSW THROUGH THE  
DIRECTOR GENERAL OF TRANSPORT FOR  
NSW 2014

Extracts from this publication may be  
reproduced provided the source is fully  
acknowledged.

# Table of contents

1.	Introduction .....	4
2.	Physical Character of the Waterways .....	6
2.1	Background .....	6
2.2	Lake Macquarie.....	6
2.3	Tuggerah Lakes.....	8
3.	Waterway Users.....	10
3.1	Analysis of Waterway Users .....	10
3.2	Regional Site Visits.....	11
3.3	Consultation to Date .....	12
4.	Safety .....	15
4.1	Overview of Existing Safety Activities .....	15
4.2	Complaints.....	16
4.3	Infringements .....	17
4.4	Incidents.....	18
4.5	Consultation Feedback .....	20
4.6	Key Findings .....	21
4.7	Actions .....	22
5.	Access .....	24
5.1	Overview of Existing Access Facilities.....	25
5.2	Consultation Feedback .....	28
5.3	Key Findings .....	29
5.4	Actions .....	30
6.	Storage .....	33
6.1	Existing Storage .....	34
6.2	Consultation Feedback .....	38
6.3	Key Findings .....	38
6.4	Actions .....	40
7.	Other issues raised during consultation.....	43
7.1	Overall Analysis of ‘Other’ Issues .....	43
7.2	Snapshot of ‘Other’ Issues .....	43
8.	Detailed Opportunities to support Actions.....	46
9.	References .....	66

## Table index

Table 1 – External stakeholders consulted at a regional level.....	12
Table 2 – Profile of survey respondents .....	13
Table 3 – Perceived importance of safety issues – survey responses .....	21
Table 4 – List of Grants provided to Lake Macquarie – Tuggerah Region through the BBP Projects.....	27
Table 5 – Perceived importance of access and infrastructure issues – survey responses .....	29
Table 6 – Perceived importance of storage issues – survey responses .....	38
Table 7 - Location based key issues, potential solutions and opportunities.....	47

## Figure index

Figure 1 – Map of regions.....	5
Figure 2 – Lake Macquarie and surrounds .....	7
Figure 3 – Tuggerah Lakes estuary and catchment .....	9
Figure 4 – Infringement analysis.....	18
Figure 5 – Survey response – overall safety satisfaction .....	21
Figure 6 – Examples of safety issues .....	23
Figure 7 – Example access facilities within the region .....	26
Figure 8 – Completed BBP projects examples within the region .....	28
Figure 9 – Survey response–overall satisfaction with access and infrastructure facilities .....	29
Figure 10 – Examples of access issues .....	32
Figure 11 – Examples of commercial marina berths, swing moorings, yacht club and dinghy storage at yacht club on Lake Macquarie.....	34
Figure 12 – Examples of private domestic jetties, private moorings, fore and aft moorings and dinghies used for accessing private moorings .....	35
Figure 13 – Examples of private and commercial moorings on Tuggerah Lakes (Ourimbah Creek) .....	36
Figure 14 – Survey response – overall satisfaction of storage facilities .....	38
Figure 15 – Examples of storage issues identified during regional site visits .....	41
Figure 16 – Example of Cluttered bay – Belmont.....	42

## Appendices

- Appendix A – Details of Stakeholder Consultation
- Appendix B – Maps

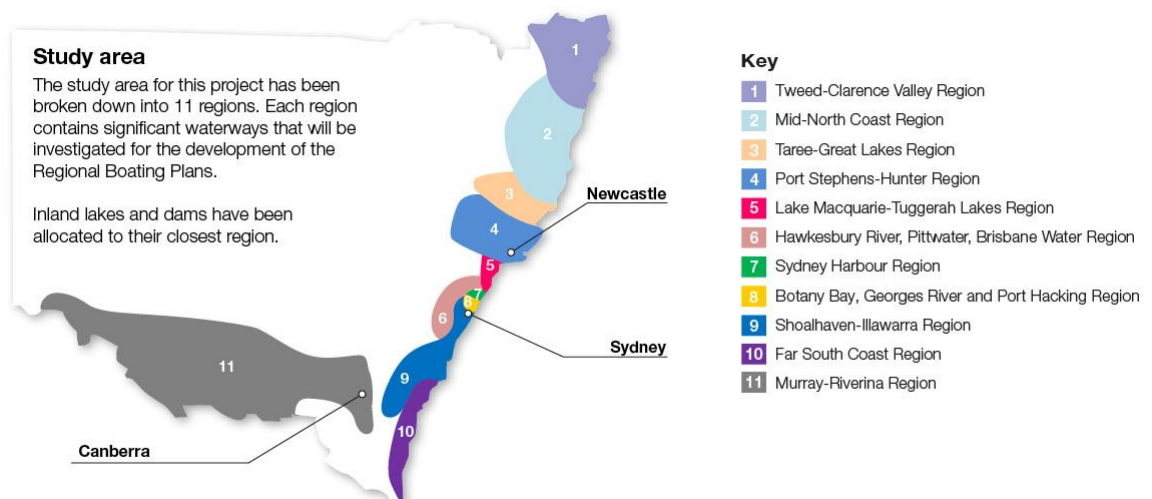


# 1. Introduction

The NSW Government is seeking to improve the experience of recreational boating across NSW through the development of Regional Boating Plans that will identify the priority projects and actions over the coming years in order to keep our waterways safe and accessible for everyone to enjoy.

The Regional Boating Plans are being developed by the Maritime Management Centre (MMC) in Transport for NSW, working closely with Roads and Maritime Services (Roads and Maritime) and consultants with expertise in coastal infrastructure. The Plans will be used to inform projects to be funded out of a new boating infrastructure partnership program. The new program will replace the successful Better Boating Program and will see more funding available for boating facilities across NSW with a stronger focus on delivering projects that will provide the greatest strategic benefit to each region.

The State's major waterways have been grouped according to geography and waterway management to form eleven distinct Regions as shown in Figure 1. A Regional Boating Plan will be developed for each of these Regions.



**Figure 1 – Map of regions**

Each Regional Boating Plan is being developed through a two-stage process involving the development of a Consultation Draft and then a Final Plan for each Region. This Consultation Draft has been informed by the feedback received through an initial consultation program including engagement with local Councils and an online survey process open to all waterway

## **Figure 1 – Map of regions**

Each Regional Boating Plan is being developed through a two-stage process involving the development of a Consultation Draft and then a Final Plan for each Region. This Consultation Draft has been informed by the feedback received through an initial consultation program including engagement with local Councils and an online survey process open to all waterway users and members of the general public. Key stakeholder groups were also consulted at the State-wide level.

The project team has also undertaken site visits of infrastructure in each Region including on-water inspections with local Roads and Maritime Boating Safety Officers (BSOs).

Following release of the Consultation Draft the project team will return to each Region to discuss the key findings, actions and potential projects with Councils and to seek further community views through a public information session.

Submissions on the Consultation Draft can be made via email to [mmc@transport.nsw.gov.au](mailto:mmc@transport.nsw.gov.au) by **13 July 2014**.



## 2. Physical Character of the Waterways

### 2.1 Background

This region predominately consists of two major waterways, namely Lake Macquarie and Tuggerah Lakes. Recreational boating is important to both lakes and largely defines the character of the region. Users undertake a wide variety of boating activities on the waters including water-skiing, sailing and fishing. Activities such as swimming and diving are also popular. Lake Macquarie, in particular, is heavily used by recreational boaters and has numerous access points around its perimeter. A profile of the users of the waterways is provided in Chapter 3.

The waterways are covered by two councils:

- Lake Macquarie City Council (LMCC)
- Wyong Shire Council (WSC)

Each of these councils has a plan<sup>1</sup> in place to manage their local waterways and surrounding development with objectives being to: manage and co-ordinate development; improve public accessibility; and protect the visual character and natural landscape of the waterways.

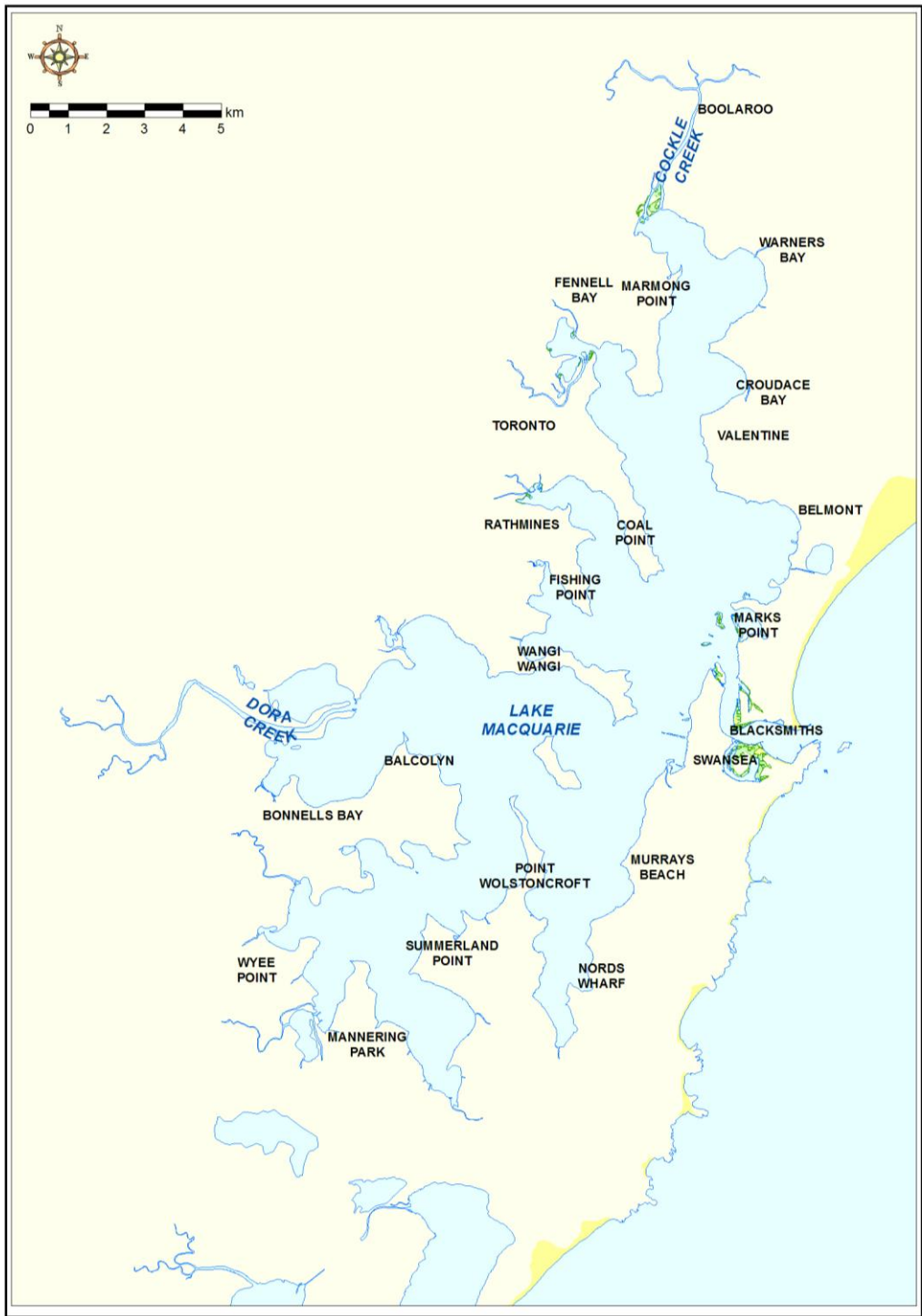
### 2.2 Lake Macquarie

Lake Macquarie is a large coastal lake located 120 km north of Sydney and to the south of Newcastle (Figure 2). The lake has an overall length of 22 km in the north-south direction and has a maximum width of 8 km. The foreshore has many bays and headlands. The maximum depth of the lake is approximately 11 m with an average depth of 8 m. The lake is twice as large as Sydney Harbour and is the largest saltwater lake in Australia. As a result, the lake supports a wide range of sea life and environmental habitats. Lake Macquarie is connected to the Pacific Ocean at Swansea by a constricted channel. The water level in the Lake does not have a significant tidal influence.

The Lake Macquarie catchment is spread over two Local Government Areas (LGAs), LMCC and WSC. Much of the catchment, particularly the foreshore and surrounds, is now developed for residential and industrial purposes. There are, however, some remaining rural areas and tracts of State Forest, predominantly in the western part of the catchment.

---

<sup>1</sup> Lake Macquarie Development Control Plan 2014 – Foreshore and Waterway Development, and Wyong Shire Council's W2 (Waterfront Structures) policy



**Figure 2 – Lake Macquarie and surrounds**



## 2.3 Tuggerah Lakes

The Tuggerah Lakes estuary is located south of Lake Macquarie. It is comprised of three shallow coastal lagoons; Tuggerah Lake, Budgewoi Lake and Lake Munmorah (Figure 3). Major tributaries to Tuggerah Lakes include:

- Wallarah Creek;
- Wyong River; and
- Ourimbah Creek.

The three lakes occupy a combined area of 70 km<sup>2</sup>. They are all interconnected and are open to the Pacific Ocean at The Entrance. The Entrance has a constricted channel and, as such, there is very little tidal influence west of Picnic Point (the most western point of The Entrance). Across Tuggerah Lakes there is a maximum depth of approximately 6 m (near the centre of Tuggerah Lake) with much shallower areas (depths of approximately 2m) extensively elsewhere in the lakes. Tuggerah Lakes are located within the WSC LGA. The estuary has always been important to WSC in terms of its value to tourism, recreation and fisheries.

The physical characteristics of Tuggerah Lakes restrict boating access in a number of areas. The build-up of seaweed (rack) along large sections of the foreshore makes boating access difficult and can detract from the overall boating experience.



**Figure 3 – Tuggerah Lakes estuary and catchment**



## 3. Waterway Users

The physical character and location of the Lake Macquarie – Tuggerah regional waterways has led to popular and widespread recreational boating usage. The region is popular for recreational fishing, sailing, water skiers, wake vessels, rowers, kayakers, yacht racing and other regattas. The waterways, particularly Lake Macquarie, also host numerous sporting events (sailing, rowing etc...) throughout the year.

Lake Macquarie is an extremely popular destination for a diverse range of recreational boaters, becoming very busy on weekends and during public holidays, particularly during the summer months. This places extensive pressure on existing infrastructure, which stakeholders have suggested is currently insufficient or unsuitable to meet peak demand in numerous places. Being unable to meet such demand detracts from the boating experience and can potentially increase safety risks in areas where there are conflicting user requirements.

Tuggerah Lakes is also a popular region for recreational boaters. Due to its shallow waters and small number of suitable access points the lakes are generally more popular amongst small vessel users including sailing, power, passive craft and hire vessels. Fishing occurs extensively across the lakes as well as other recreational activities.

### 3.1 Analysis of Waterway Users

#### 3.1.1 Licence Data Analysis

As of the 2011 census, there were 189,006 and 149,746 people living in the LMCC and WSC LGAs respectively. The region generally experienced a population growth between 3-7%, between 2006 and 2011, which was below the national average of 8.32%.

As of 12/03/2014 there were approximately 41,000 boat licence holders in the Lake Macquarie - Tuggerah Lakes Region. This represents approximately 8% of all boating licences in NSW.

The majority of licence holders in the region carry a General Boat Licence with approximately 10% licensed to operate Personal Watercrafts (PWCs). This breakdown of licence types is typical across the state.

#### 3.1.2 Registration Data Analysis

As of 12/03/2014 there were approximately 19,000 registered recreational vessels in the Lake Macquarie - Tuggerah Lakes Region, This represents approximately 8% of all registered recreational vessels in NSW. The most common vessel hull types in this region are Open

Runabouts followed by Cabin Runabouts and Sail vessels. Whilst overall there are more power vessels registered in this area, there are nevertheless significant numbers of sail craft.

A significant majority (83%) of the registered vessels in this region are below 6 m (overall average for the region is 5 m) and therefore most likely stored on trailers. This has a strong influence on the boating access and storage issues in the Region with a strong focus on boat ramps and trailer parking.

### **3.1.3 Other Users**

Whilst the data analysed above provides information on licence holders and vessels registered in the Lake Macquarie-Tuggerah Lakes Region, it does not capture vessels from other Regions utilising these waterways. Many regular users of Lake Macquarie reside in nearby Newcastle LGA which incorporates approximately 12,000 licence holders and 5,000 registered vessels.

The waterways are also used by boaters from other nearby regions including the Central Coast and Sydney and the Lower and Upper Hunter areas, which can add significantly to the local demand at certain times of the year.

Roads and Maritime's licence and registration data does not capture passive craft numbers such as kayaks, canoes, beach-launch sail craft which do not require registration. Based on the estimated total number of these vessel types in NSW, it is suggested that there may be several thousand unregistered craft in the Lake Macquarie – Tuggerah region.

### **3.1.4 Future Demand**

In 2010, the then NSW Maritime released a report titled *NSW Boat Ownership and Storage Growth Forecasts to 2026*. The report forecast a continuing growth trend in vessel ownership of 2.9% annually across NSW.

The report used a different regional profile to that being used for the Regional Boating Plan, however it identified the Hunter-Inland region (which incorporates Lake Macquarie) as the 'powerhouse' for recreational boating in NSW with growth rates about the State average at between 3-5% per annum across all boat sizes.

## **3.2 Regional Site Visits**

Site visits within the Region and consultation with local stakeholders were an integral part of the study process. This section summarises key findings and observations in relation to the users of this region.

The constricted nature of the entrance to Lake Macquarie at Swansea contributes to the lake being dominated by trailered boats (generally less than 6m) with few larger vessels accessing the waterway. Larger vessels that access the waterway are generally stored on water at private moorings, private domestic jetties, or at marinas (berths and commercial moorings).

Whilst overall, there are more power vessels in the region, there are a number of bays and areas that are dominated by sail vessels. This was observed in areas where sailing infrastructure such as yacht or sailing clubs are located. For example, close to 80% of private moorings in Toronto are occupied by sailing vessels, with similar percentages in Sunshine (Lake Macquarie) and slightly lower percentages in Belmont.

Although waterway usage is spread fairly evenly throughout the whole lake, there is a preference to use well sheltered bays for recreational activities for protection from the wind. Vessels seeking suitably protected anchorages at peak boating times do so at Murrays Beach, Pulbah Island, Kilaben Bay and Crangan Bay. Areas that see extensive use as routes for lake-wide access are in the narrow channel between Wangi Wangi peninsula, the sand bars at Swansea Flats and the Swansea Channel. Water ski and jet ski activities have also been

highlighted as typically operating in the southern portion of the lake in locations such as Point Wolstoncroft, Sandy Beach, Cams Wharf, Bonnells Bay, Chain Valley Bay and Crangan Bay. PWCs also frequent Swansea Bar and offshore beaches.

Similar to Lake Macquarie, the recreational boating demand in Tuggerah Lakes is also driven by local residents. However, vessels accessing the waterway are generally smaller than those accessing Lake Macquarie due to water depth and lack of foreshore access. During peak periods, tourists and other visitors to the region avail themselves of a variety of commercial operations that include hire and drive vessels, kayaks and canoes, smaller sail craft, and more recently, stand up paddle boarding (SUPs). Fishing, both from vessels and prawning from the shore, continue to be popular activities on the waterway.

### 3.3 Consultation to Date

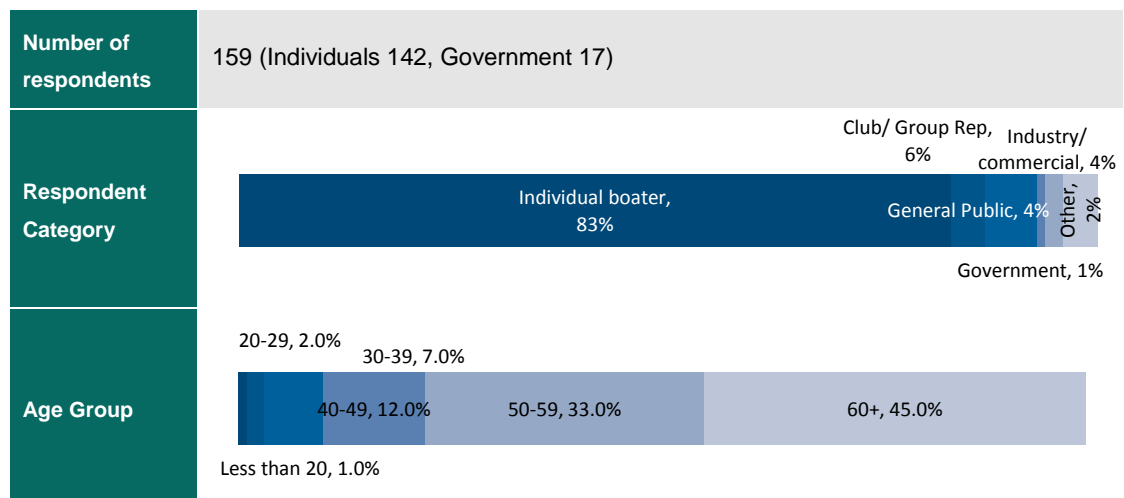
Stakeholder consultation was undertaken in this region with council LMCC and WSC, Roads and Maritime's BSOs and other groups through facilitated workshops and meetings. Appendix A provides a comprehensive list of State-wide stakeholders consulted as part of this study. Table 1 outlines the groups consulted specifically for this region.

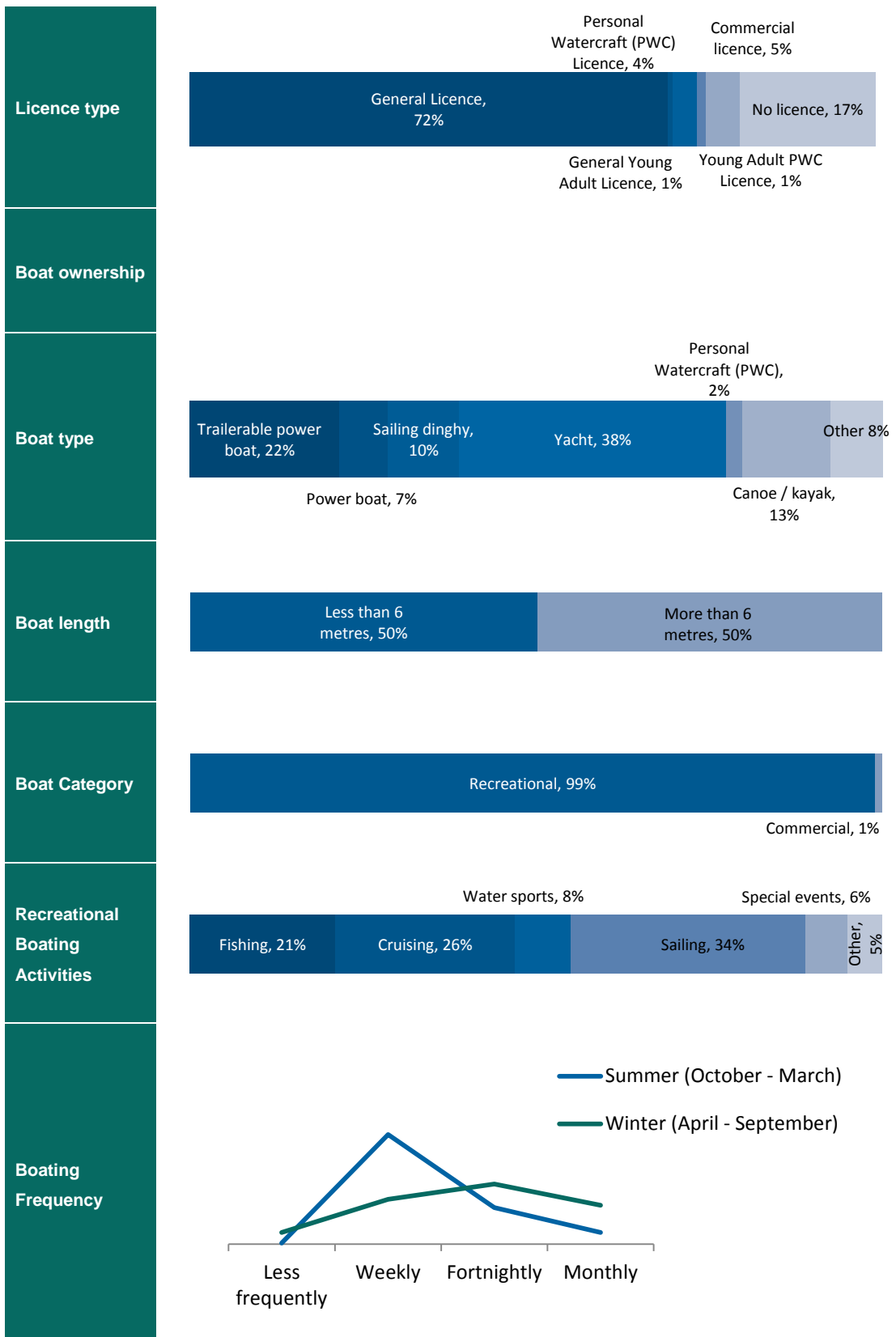
**Table 1 – External stakeholders consulted at a regional level**

Agency / Group Represented
Boating Safety Officers responsible for the region
Lake Macquarie City Council
Wyong Shire Council
Individual and other representative stakeholders

An online survey was also open to all stakeholders and the broader community, with 159 survey responses received. Although the sample size of respondents was considerable, the outcomes of the survey should not be viewed as representative of all users of this waterway. A detailed profile of the survey respondents is available summarised below in Table 2.

**Table 2 – Profile of survey respondents**







## 4. Safety

### Key findings

- Stakeholder consultation suggests high levels of satisfaction with current boating safety in the Region.
- Analysis of incidents, infringements and complaints show the area is typical of a busy waterway with multiple users who sometime conflict with each other.
- Improved signage and navigation aids would help enhance the overall boating experience.

### Actions

- a. Renew and refresh navigations aids
- b. Review strategies to improve user behaviour
- c. Improve signage clarity and visibility

### 4.1 Overview of Existing Safety Activities

Roads and Maritime is responsible for marine safety in NSW including the operational aspects of the regulation of recreational and commercial boating activity throughout the State. This role is chiefly performed by Boating Safety Officers (BSOs) who conduct regular on-water patrols and inspections throughout Lake Macquarie and the Tuggerah Lakes to ensure continuing boating safety education and compliance for vessels and equipment, including lifejackets, speed, wash, distance off and mooring requirements. Roads and Maritime also operate a Mobile Safety Education and Compliance Team which is a team of specialist BSOs who can be deployed throughout NSW.

The BSOs work in close partnership with the local NSW Police Force (both general duties Police and the local Marine Area Command), often conducting joint patrols, although police officers are solely responsible for conducting random breath testing on NSW navigable waters.

BSOs also work in partnership with officers of the Department of Primary Industries (Fisheries) and National Parks' rangers in relation to matters of common interest.

In addition to State-wide regulatory requirements and boating safety campaigns, specific boating safety restrictions that apply in Lake Macquarie and Tuggerah Lakes are shown on the map included in Appendix B. These are summarised as follows:

- Speed restrictions such as:
  - 4 knot zones, specifically at:
    - Swansea Channel;
    - Creeks such as Cockle Creek, Stoney Creek, Dora Creek, South Creek, Ourimbah Creek, Spring Creek; and
    - Upstream Wyong River.
  - 6 knot zone at Swan Bay; and
  - 8 knot zones at Wyong River, Wallarah Point, The Entrance, Fennel Bay and Wallarah Creek.
- “no wash” zones;
- personal watercraft prohibited areas;
- all or power boats prohibited areas;
- no anchoring submarine cables;
- shallow waters;
- bar crossings;
- shared zones; and
- no towing zones.

A further restriction is the overall speed limit of 60 knots on NSW navigable waters if any person aged under 18 years is on board a vessel (unless an aquatic licence specifies otherwise).

In addition, there are also a number of general “distance off” restrictions which apply on all NSW waters – for example, vessels travelling at 10 knots or more must remain at least 60 m from people in the water and 30 m from structures, shorelines and other powered vessels. Where it is not possible to maintain the specified distances, a “safe distance” should be maintained. This is the distance which will ensure that a vessel will not endanger or injure people or damage property, having regard to relevant factors such as prevailing weather conditions, visibility, speed and any obstructions.

## **4.2 Complaints**

Analysis of the complaints received by Roads and Maritime during the 5 years leading up to 1 January 2014 reveals that the majority of complaints received relate to:

- speeding;
- noise;
- vessels not observing correct distances off;
- irregular riding of personal watercraft and jet skis, including complaints about wash and not observing correct distances off;
- faulty navigation marks and signage.

The most significant number of complaints received by the Maritime for the Lake Macquarie – Tuggerah Lakes region related to the popular Sandy Beach-Summerland Point area. Other



noticeable areas for which complaints were received included Budgewoi Lake, Tuggerah Lake, Wyong River, Dora Creek and Nords Wharf.

As can be seen in 4.5 below, the consultation feedback closely aligned with complaints data, with suggestions that some boaters in the region remain confused or are yet to be properly educated about “distance off” restrictions and “No Wash” areas.

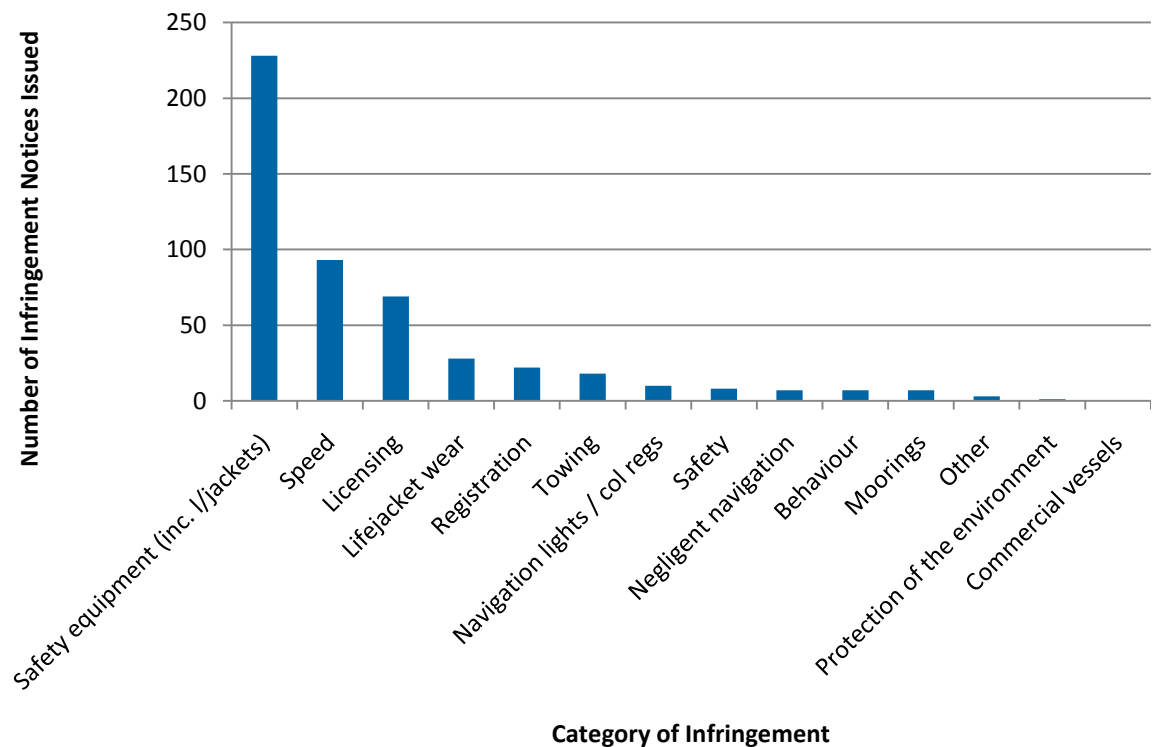
### 4.3 Infringements

Between 2009 and 2013, the number of penalty notices issued within the Lake Macquarie – Tuggerah Lakes region accounted for 4% of all infringement notices issued throughout NSW. Of the penalties issued over that period, approximately 93% were issued by Roads and Maritime, whilst the remainder were issued by NSW Police. In addition to these penalties, 737 formal warnings were issued. The highly trafficked waters of Lake Macquarie accounted for 75% of the region’s infringements.

As indicated in Figure 4 below, the infringements for which the most penalty notices were issued in the region were for:

- failure to carry the correct safety equipment;
- excessive speed; and
- failure to carry the required licence.

Figure 4 – Infringement analysis



### 4.4 Incidents

In the period between 1 January 2009 and 31 December 2013, there were 109 vessel incidents reported to Roads and Maritime in the region. Ninety-one incidents occurred on Lake Macquarie, nine occurred on Tuggerah Lakes, and another seven incidents occurred offshore. Ninety six of the incidents involved recreational vessels, 10 involved an interaction between a recreational and commercial vessel and four involved commercial vessels only. This breakdown

of incidents shows a lower than average proportion of commercial vessel incident involvement compared to the state-wide average; reflective of the comparatively low level of commercial vessel usage in the Region.

#### **4.4.1 Incidents Resulting in Death or Injury**

Six fatal incidents have occurred in the region during this period. One incident resulted in the deaths of two people. Five of these incidents involved small open runabouts and the vessel either capsizing or the deceased falling overboard. The other incident involved a PWC colliding with a fixed object at high speed. All of the deceased, with the exception of the PWC rider, were not wearing an appropriate lifejacket and drowned.

Thirteen incidents occurred which resulted in serious injury to the victim. A serious injury is classified as one requiring hospitalisation or outpatient treatment. These incidents resulted in 20 injuries and while the high number of multiple-injury incidents is slightly unusual, the types and causes of these incidents varied without showing any particular trend or pattern. An additional 14 incidents resulted in minor injury to 18 persons; the vast majority (11) of these were the result of collisions between vessels, capsizing, or a person falling overboard.

#### **4.4.2 Types of Vessels**

The main types of vessels involved in incidents, where known, were sailing vessels (25%), small powered craft (open runabouts 24%, cabin runabouts 11%) and larger motor cruisers (21%). PWC (5%), houseboats (3%) and passive craft (1%) were not highly represented.

#### **4.4.3 Incident Locations**

While incidents occurred throughout the region there are a number of areas where there were significant concentrations of incidents. These areas are:

- 15 incidents on Lake Macquarie between Swansea Heads and Pelican Island (i.e. Swansea Channel).
- 22 incidents occurred in the mid-east section of Lake Macquarie, between Green, Gallibabba, Wangi and Skye Points.
- 24 incidents in north/north western Lake Macquarie between Boughton, Hartley, Green and Dewey Points.

#### **4.4.4 Incident Cause**

Behavioural and environmental factors were identified as the primary cause of the majority of incidents. Fifteen incidents were the result of a lack of proper lookout and another 13 were caused by a lack of judgement, while 20 incidents were the result of weather or tidal conditions. Material factors were attributable to 15 incidents involving failure of a variety of equipment, machinery, electronics or hull; higher than the state-wide average.

#### **4.4.5 Incident Type**

Composition of incident types in Lake Macquarie was unexpected and considerably different to state-wide averages. Almost half (53 incidents) involved collisions between vessels, which is a significantly greater proportion than the state-wide average of approximately one third.

The next most common type of vessel incident observed in the region was vessel capsize (16 incidents), and while there were a number of incidents such as fire (6) and falling overboard (4) which had serious consequences, no other incident type registered more than 3 incidents.

#### 4.4.6 Incident Operation

Vessel operation at the time of an incident provides some insight into the nature of incidents occurring. While 55 were the result of vessels underway, 17 vessels were moored and 18 were at anchor or berth, which is an unusually high proportion when compared to the rest of the state. Twenty two of the incident collisions noted at Section 4.4.5 involved collisions with vessels that were moored, berthed or at anchor – mostly by vessels breaking their berths or moorings and colliding with other moored vessels. Only one tow sport incident was reported during the period, much lower than the state-wide average for waterways where towing occurs.

#### 4.4.7 Time of Day, Month and Year

Where the time of the incident is known, 78 occurred during daylight; 30 in the morning and 48 in the afternoon. Twenty two incidents occurred at night, with an even spread before and after midnight. December, January and February were the main months when incidents occurred, corresponding to the heaviest periods of boating activity, with a slight spike also occurring during September. Similarly, weekends were the most likely days for incidents to occur.

#### 4.4.8 Wind and Weather

During consultations anecdotal evidence was provided suggesting that the lakes can be subject to rapidly changing weather conditions, including substantial winds and wave chop, which can cause problems for boaters, particularly in small vessels. The lake has large fetches in both north-easterly and southerly winds. Over half the incidents occurred on days with clear visibility and fine weather, almost half of all incidents were reported as occurring in conditions described as choppy, rough, very rough or in strong current.

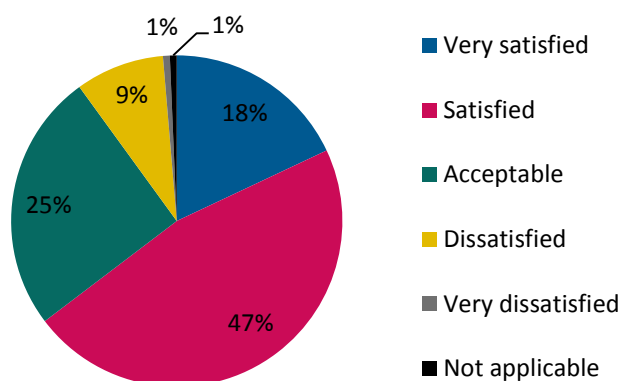
#### 4.4.9 Bar Crossings

While there was one fatality on Swansea Bar in 2005, in the past five years there has been only one reported bar crossing incident at Swansea, and none at The Entrance. This is partially due to The Entrance channel being barely navigable during this time, however is also reflective of state-wide statistics which demonstrate improved safety awareness and compliance around crossing bars, particularly in relation to compulsory lifejacket wear.

### 4.5 Consultation Feedback

Survey respondents generally rated their satisfaction level with respect to safety positively, with 90% stating it to be acceptable or above.

**Figure 5 – Survey response – overall safety satisfaction**



Respondents that rated the overall safety of the region as ‘dissatisfied’ or ‘very dissatisfied’ were typically concerned about: vessels not observing distance off, navigation hazards and on water issues. Overall the respondents’ results were tallied to identify the perceived importance of various safety issues. The resulting rankings are shown in Table 3.

**Table 3 – Perceived importance of safety issues – survey responses**

Rank	Issue
1	On-water behaviour
2	Vessels not observing correct distance
3	Navigation aids
4	Wash
5	Speed
6	Hazards
7	Emergency response

## 4.6 Key Findings

The consultation feedback suggests that boaters in Lake Macquarie and Tuggerah Lakes generally have a positive view about safety on the Region’s waterways. Analysis of complaints, infringements and incidents data suggests that, as busy waterways with multiple types of users, Roads and Maritime will need to remain vigilant in actively managing safety on the waterways through its compliance activities and education campaigns, however that there is no immediate need for new measures specific to the Region.

It is also clear that there are areas of dissatisfaction where action can be taken to improve the boating experience in the Region. Improving the behaviour of waterway users was a common theme across the different stakeholder groups, in particular, in areas where there are conflicting uses of the waterway. State-wide education campaigns are important in supporting this objective; however there are also actions that can be taken at the local level through measures such as improving the visibility and clarity of signage.

During the site visits, numerous examples were noted of faded and/or obscured safety signage, or safety signage that is “lost” among a cluster of signage from a range of other agencies with different purposes (for example, fishing, overhead powerlines). Updating navigation aids was also cited as an opportunity to deliver improvements for boaters in the area.

A location-based summary of the feedback received regarding boating safety in Lake Macquarie and Tuggerah Lakes is provided in Chapter 8. All of these issues have been considered in the development of this Consultation Draft and it is anticipated that most will be addressed through the Actions described below. Any localised issues not addressed by the proposed Actions will be referred to local BSOs for review.

## 4.7 Actions

### a. Renew and refresh navigation aids

Roads and Maritime will review and update its program for managing and replacing navigation aids, particularly in Lake Macquarie.

**b. Review strategies to improve user behaviour**

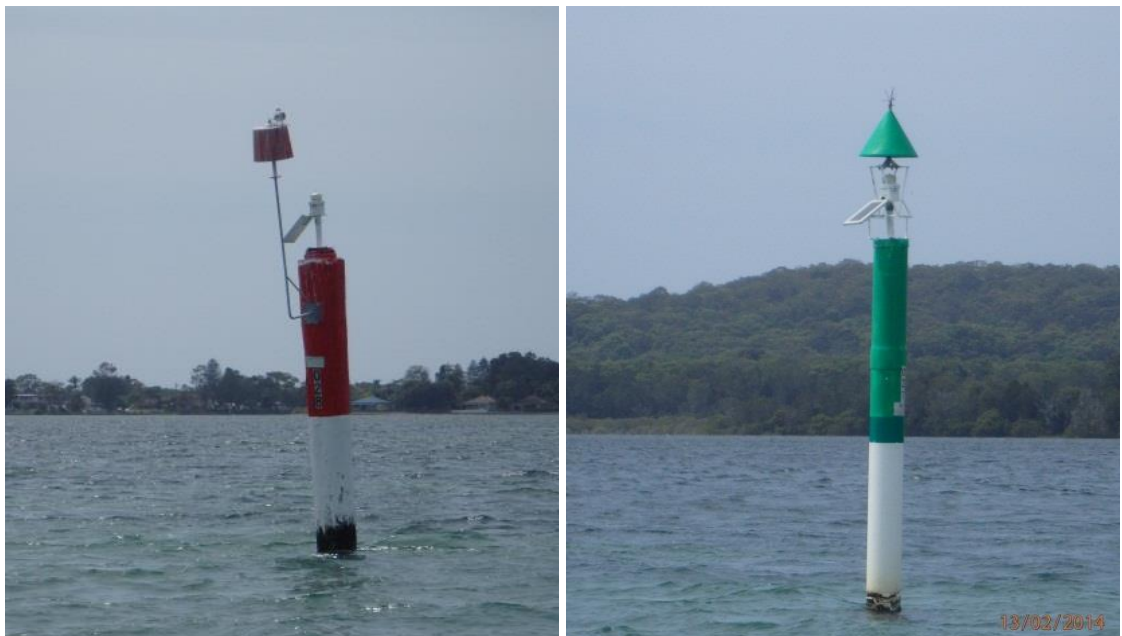
Roads and Maritime will review its current approach to education and communication campaigns within the Region to improve awareness of navigation rules and key safety measures among local boaters.

**c. Improve signage clarity and visibility**

Roads and Maritime will review existing signage at boating locations throughout the region and work with other government agencies to improve clarity of signage at boat ramps. Obsolete signage will be removed as part of the project.

A new boating safety information sign template has been designed allowing interchangeable key boating safety messages to be displayed in the vicinity of boat ramps and includes waterway hazard information unique to each location. These new signs will be progressively rolled out to major boat ramps in the region.

**Figure 6 – Examples of safety issues**



(Left) Timber navigational aid and (Right) Recently installed synthetic navigational aid (preferred)



Examples of unclear and confusing signage in the region



## 5. Access

### Key findings

- There are a relatively large number of waterway access points in Lake Macquarie however more can be done to improve the condition of much of the infrastructure and to increase capacity at key locations to better manage peak demand. Increasing car/trailer parking capacity at key boat ramps is a particular priority.
- The physical characteristics of the Tuggerah Lakes restrict opportunities to improve access in a number of areas, highlighting the need to maximise the utility of existing infrastructure.
- Maintaining ocean access through Swansea Channel is of major importance to boating in the Region.
- Strategic placement of additional courtesy moorings will enhance the overall boating experience and help reduce congestion at public jetties.

### Actions

- d. Improve the condition of boat ramps and other access facilities at key locations
- e. Increase trailer parking capacity
- f. Provide additional courtesy moorings at popular locations
- g. Maintain a safe navigation channel to the ocean through Swansea Channel
- h. Maintain utility of existing access facilities in Tuggerah Lakes

## 5.1 Overview of Existing Access Facilities

There are a large number of boating access points within Lake Macquarie and Tuggerah Lakes.

Trailerable vessels can be launched and retrieved at public boat ramps, some of which have public facilities available, such as trailer parking, fish cleaning and toilets. Access is also available through smaller sailing, rowing or similar clubs. There is also informal access for smaller vessels such as dinghies, runabouts, and passive craft from public foreshore land including reserves and beaches. Larger vessels generally access the waterway at their on-water storage facilities such as marinas or through dinghy access to vessels kept on moorings.

Public wharves and jetties are also located on the region's waterways and provide access to and from the water for recreational and commercial vessels.

During the site visits, some of the ramps visited were visually identified to be in below average condition, lacking amenities and access facilities. This is reinforced by stakeholder feedback as well as the existing literature that was reviewed, particularly documents issued by Lake Macquarie City Council and Wyong Shire Council such as the Boat Ramp Rehabilitation Program, Jetty Construction Program and Review of Boat Ramps in Wyong Shire.

### **Boat ramps**

There are currently approximately 55 boat ramps.

- Location:
  - 37 are located in Lake Macquarie; and
  - 18 provide direct access to Tuggerah Lake, Budgewoi Lake, Lake Munmorah or Wyong River.
- Material:
  - 48 are concrete ramps; and
  - seven are composed of gravel or sand.
- Ownership:
  - 49 of the boat ramps are owned and maintained by Councils (LMCC or WSC depending on location)

### **Public jetties, wharves and pontoons**

In addition to ramps there are approximately 70 public access points in the region including wharves, jetties, pontoons and landings.

- Location:
  - 49 in Lake Macquarie;
  - 12 in Tuggerah Lake; and
  - 9 in Budgewoi Lake.

### **Courtesy moorings**

Current courtesy moorings include:

- Two at Pulbah Island;
- Two at Rathmines (Styles Point and Kilaben Bay);
- One at Green Point;
- Five in Swansea Channel;
- One at Murrays Beach; and

- One in Wangi Wangi Bay.

**Figure 7 – Example access facilities within the region**



Disabled access (sailability) pontoon, Toronto



Croudace Bay - Valentine



Murrays Beach



Coon Island



Sandy beach



Toronto Royal Motor yacht Club

### 5.1.1 Better Boating Program grants

Through the Better Boating Program, Roads and Maritime has provided grants totalling over \$2.7 million for 24 projects in the Lake Macquarie – Tuggerah Lakes region between 2005 and 2014. A selection of these can be seen in Figure 8 with all projects listed in Table 4 below. It is important to note that the total cost of the projects is not depicted in this table. For total cost of the projects refer to the [Maritime website](#).

**Table 4 – List of Grants provided to Lake Macquarie – Tuggerah Region through the BBP Projects**

Recipient	Project	Final Grant
Belmont 16ft Sailing Club	Disabled Access for Lake Macquarie	\$50,000
Lake Macquarie City Council	Blacksmiths Boat Harbour Pontoon - Lake Macquarie Entrance	\$85,000
Lake Macquarie City Council	Boat Ramp Upgrade at Dobell Park, Wangi	\$100,000



Recipient	Project	Final Grant
	Wangi	
Lake Macquarie City Council	Bonnells Bay Boat Ramp Rehabilitation	\$150,018
Lake Macquarie City Council	Eleebana Boat Ramp Carpark Upgrade, Warners Bay (Lake Macquarie)	\$138,000
Lake Macquarie City Council	Rathmines Seaplane Boat Ramp Reconstruction	\$69,550
Lake Macquarie City Council	Speers Point Jetty & Pontoon, Cockle Creek (Lake Macquarie)	\$61,926
Lake Macquarie City Council	Sunshine Boat Ramp	\$100,000
Lake Macquarie City Council	Swansea Flats Mooring Area Rehabilitation, Lake Macquarie	\$40,200
Lake Macquarie City Council	Swansea Wharf Pontoon	\$82,088
Lake Macquarie City Council	Thomas Humphries Reserve Boating Facilities Upgrade, Swansea	\$210,000*
Lake Macquarie City Council	Toronto Jetty Baths Upgrade	\$44,000
Royal Motor Yacht Club Toronto	Reconstruction of Damaged RMYC Boat Ramp	\$5,000
Sailability Toronto	Sailability NSW Toronto Jetty and Pontoon	\$56,984
Wangi Wangi District Workers Club	Repairs to Wangi Wangi District Workers Club & Public Jetty	\$40,000
Wyong Shire Council	Norah Head Boat Ramp Reconstruction (Concept Designs), Norah Head	\$20,000
Wyong Shire Council	Picnic Point Boat Ramp and Facilities Upgrade, The Entrance	\$125,000
Wyong Shire Council	Picnic Point Boat Ramp and Facilities Upgrade, The Entrance (Additional Funding)	\$50,000
Wyong Shire Council	Sunshine Reserve Boat Ramp Upgrade (Carpark), Chittaway Point	\$88,298
Wyong Shire Council	Vales Point Boat Ramp Upgrade, Mannering Park	\$17,981
Wyong Shire Council	Norah Head Boat Ramp Replacement (Additional Funding 1)	\$400,000*
Wyong Shire Council	Norah Head Boat Ramp Replacement (Additional Funding 2)	\$550,000*
Wyong Shire Council	Norah Head Boat Ramp Replacement (Investigation & Design)	\$200,000*
Wyong Shire Council	Sunshine Reserve Boat Ramp Upgrade, Chittaway Point	\$20,670
	<b>TOTAL</b>	<b>\$2,704,715</b>

\* denotes Active projects as of 21/01/2014

**Figure 8 – Completed BBP projects examples within the region**



**Balmoral Jetty at Green Point -Lake Macquarie**



**Bonnells Bay Boat Ramp - Lake Macquarie**



Booragul Jetty Replacement



RMYC Boat Launching ramp upgrade



Picnic Point Boat Ramp and Facilities Upgrade

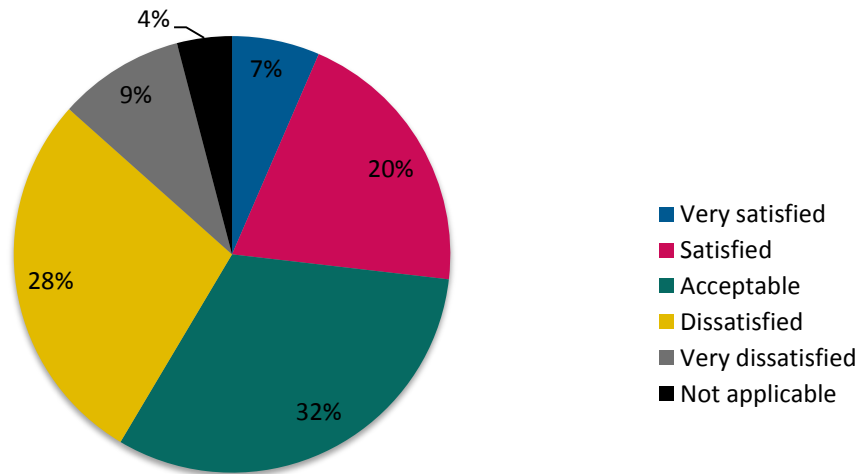


Swansea Wharf Pontoon, Lake Macquarie

## 5.2 Consultation Feedback

59% of survey respondents rated their satisfaction level with access and infrastructure facilities as acceptable or higher whereas 37% were dissatisfied or very dissatisfied.

**Figure 9 – Survey response—overall satisfaction with access and infrastructure facilities**



Respondents that rated the overall access of the region as ‘dissatisfied’ or ‘very dissatisfied’ were typically concerned about condition of infrastructure, capacity and general access. Overall the respondents’ results were tallied to identify the perceived importance of various access issues. The resulting rankings are shown in Table 5.

**Table 5 – Perceived importance of access and infrastructure issues – survey responses**

Rank	Issue
1	Condition
2	General access
3	Capacity
4	Safety
5	Amenity
6	Car parking
7	Accessibility to moorings
8	Trailer parking
9	Disability access

### 5.3 Key Findings

Lake Macquarie has a large number of boating access points however much of the infrastructure is old and offers a relatively basic level of amenity. The consultation feedback suggests that there is a lack of capacity at many of the more popular access points to accommodate demand at peak times and to keep pace with the expected growth in boat ownership over the next decade.

There are numerous opportunities to significantly enhance the experience of a large number of boaters in the region through upgrading boat ramps and improving parking facilities and other amenities at the ramps. Given the large number of ramps, a strategic approach will be required to ensure that additional funding provided under the Government’s new boating infrastructure partnership program is directed to those projects that deliver the greatest public benefit.

Opportunities also exist to improve and modernise public jetties and pontoons to enhance access opportunities and improve disability access. Suggestions were also received that the provision of additional courtesy moorings to increase safe anchorage opportunities however to also relieve the pressure at vessels tying up to public jetties and wharves for excessive periods of time to the exclusion of other users.

The consultation feedback highlighted the importance of maintaining safe access from Lake Macquarie to the ocean through Swansea Channel. The NSW Government’s announcement in February 2014 of \$2.5 million in funding for long-term navigational dredging of Swansea Channel was highlighted by many stakeholders as the most important boating project in the region.

In addition, there are opportunities to improve access facilities in Tuggerah Lakes with stakeholders raising similar concerns to Lake Macquarie regarding the overall condition of access infrastructure and the need for more parking.

Stakeholders also highlighted that the physical characteristics of Tuggerah Lakes limit access opportunities in a number of areas, particularly due to shallow waters and the build-up of seaweed (rack) on the foreshore. Addressing such issues is beyond the scope of project to be funded out of the new boating infrastructure partnership program, however it highlights the need to ensure the utility of existing facilities.

## 5.4 Actions

### d. Improve the condition of boat ramps and other access facilities at key locations

Given the large number of facilities in the region, and the fact that Regional Boating Plans are also being developed concurrently in 10 other regions across the state, a detailed analysis of each facility in the region was not undertaken as part of the development of this Consultation Draft.

Chapter 8 includes a number of location-specific access issues identified through the consultation process, including possible solutions.

The project team will hold further discussion with LMCC and WSC to assist in identifying a list of priority projects that will deliver the greatest benefit. Other stakeholders and the general public are also encouraged to identify specific access improvement projects in the Region as outlined in Chapter 1. It is envisaged that some of the boat ramp upgrades may be delivered in conjunction with upgrades to amenities where appropriate.

### e. Improve trailer parking capacity

As part of further discussions with LMCC and WSC to identify boat ramp and access improvement opportunities, specific projects will also be identified to improve and expand the capacity of trailer parking in the Region. Some trailer parking projects may be delivered in conjunction with ramp upgrades, however there may also be opportunities to provide dedicated trailer parking facilities in nearby areas not immediately adjacent to a boat ramp.

### f. Provide additional courtesy moorings at popular locations

Funding will be provided for the installation and maintenance of new courtesy moorings in the region. As detailed in Chapter 8, BSOs and other stakeholders have suggested a number of potential locations where boaters would benefit from the installation of courtesy moorings including:

- Warners Bay, located in deep water near Warners Bay Jetty, allowing for tenders to access the jetty;
- Murrays Beach;
- Crangan Bay;
- Pulbah Island; and
- Rathmines.

### g. Maintain a safe navigation channel to the ocean through Swansea Channel

In February 2014, the NSW Government announced that \$2.5 million would be provided for long term navigational dredging in Swansea Channel.

### h. Maintain utility of existing access facilities in Tuggerah Lakes

Removing rack from large sections of foreshore is not within the scope of the new boating infrastructure partnership program, however the project team will consult with WSC to develop measures to remove rack that is restricting access or impacting on the amenity of existing facilities.

Examples of access issues identified during the regional site visits are shown in Figure 10.

## Figure 10 – Examples of access issues



Warners bay wharf where the water depths are too shallow for vessels with large draft to access.



Boat ramp in Eleebana (off Bareki Road) with shallow waters denoted by the yellow buoy on the far left.



## 6. Storage

### Key findings

- The growth in boat storage capacity across the region will need to keep pace with the forecast growth in vessel numbers.
- A new approach is required to managing dinghy storage to improve the amenity of the Lake Macquarie foreshore in areas adjacent to mooring fields.
- Navigation is restricted in a number of popular bays due to the placement of moorings.

### Actions

- i. Establish a Lake Macquarie Tuggerah Lakes Boat Storage Delivery Program
- j. Provide dinghy storage racks and develop a Dinghy Storage Management Strategy
- k. Review organisation of moorings

## 6.1 Existing Storage

### 6.1.1 Overview of Existing Storage Types

Storage for vessels is generally provided on-land for smaller (< 6 m), e.g. trailerable power or sail, and on-water for larger vessels (> 6 m); however larger vessels can also be stored on-land, for example at dry-storage facilities, for vessels up to approximately 10 m.

The main types of on-water storage in for the Lake Macquarie – Tuggerah Lakes region are principally administered as follows:

- Private moorings
- Commercial moorings
- Commercial marina berths
- Domestic berths, moorings and other associated storage

Storage can be at private or commercial facilities. On-water storage at commercial marinas, yacht / sailing clubs, or boating facilities, is provided through berths (floating or fixed), moorings (swing, fore and aft or other) and where space permits on-land, through dry storage such as a hard-stand or dry-stack. Access to vessels is usually through the commercial land site.

Examples of a commercial marina, commercial swing moorings adjacent to a commercial marina, and yacht club on Lake Macquarie, are shown below at Figure 11.

**Figure 11 – Examples of commercial marina berths, swing moorings, yacht club and dinghy storage at yacht club on Lake Macquarie**



Storage at private facilities can be adjacent to private property through domestic jetties, slipways, boatsheds, and berths or fore and aft moorings, or, through private swing moorings. Private swing moorings usually also require access to the water with a tender, for example a dinghy. These vessels also generate storage requirements on land. Shown below at Figure 12 and Figure 13 are private domestic jetties, private moorings and dinghies used for accessing private moorings, on Lake Macquarie and Tuggerah Lakes.

Vessels less than 6 metres are most often stored on private property on trailers and access the water via boat ramps.

**Figure 12 – Examples of private domestic jetties, private moorings, fore and aft moorings and dinghies used for accessing private moorings**



Private jetties



Private swing moorings



Dinghies used for accessing private swing moorings



Fore and aft moorings at Swansea Flats

**Figure 13 – Examples of private and commercial moorings on Tuggerah Lakes (Ourimbah Creek)**



### 6.1.2 Overview of Existing Storage Volume

There are approximately 3,300 vessels stored on-water or at associated land facilities in the region. Whilst numbers provided for each category are in many cases approximate, they can be generally grouped as follows:

#### Lake Macquarie

- There are approximately 2,200 private moorings currently occupied in Lake Macquarie with around 46% of these occupied by sailing vessels, including yachts, tri-marans, sailing catamarans and other sail craft.
- There are a small number of marinas and yacht clubs located in Lake Macquarie including:



- Lake Macquarie Yacht Club at Belmont – 76 berths, 18 moorings and 21 hard stand;
  - Marks Point Marina – 62 Berths, 26 moorings;
  - Marmong Point Marina – 245 wet berths, 13 swing moorings, 35 dry storage and 25 hard stand spaces;
  - Pelican Marina – 17 berths a number of which are used commercial operators, e.g. houseboats, hire and drive;
  - Royal Motor Yacht Club at Toronto – 51 berths and 10 moorings; and
  - Wyee Point Marina – 36 berths, 4 moorings and 10 hard stand spaces.
- Of the almost 200 commercial moorings on Lake Macquarie, approximately 20% of these are not attached to land-based facilities such as marinas, boatsheds, yacht, sailing or motor clubs.
  - A number of other clubs, including Belmont 16ft Sailing Club, Toronto Amateur Sailing Club and Wangi RSL Sailing Club operate in the region. Commercial moorings associated with these clubs are included in the commercial moorings shown above. Most small clubs offer members access to storage. Storage for these generally smaller vessels can be on-water or land-based, in an open hardstand area, or inside stacks in smaller sheds. Some of these vessels are not required to be registered and therefore do not appear on Roads and Maritime registrations statistics.
  - There are very few examples of formalised dinghy storage in Lake Macquarie. Dinghies are predominantly left on the foreshore or adjoining public land and are often chained to trees. No known formalised storage for passive craft.

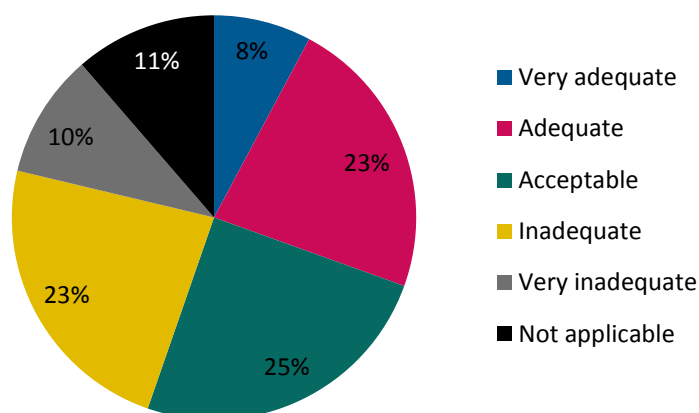
#### **Tuggerah Lakes**

- There are no marinas or associated boating facilities in Tuggerah Lakes;
- Tuggerah Lakes has a small number of private and commercial moorings (<80 in total) as well as a small number of domestic jetties, primarily in the Wyong River and Ourimbah Creek areas; and
- Sailing clubs including Toukley Sailing Club, Tuggerah Lakes Memorial Sailing Club and Long Jetty Sailing Club provide on-land storage for members with smaller sailing vessels.

## 6.2 Consultation Feedback

55% of survey respondents rated the adequacy of storage facilities as acceptable or higher and 33% as inadequate or very inadequate.

**Figure 14 – Survey response – overall satisfaction of storage facilities**



Respondents that rated the overall storage of the region as ‘inadequate’ or ‘very inadequate’ were typically concerned about dinghies on the foreshore, physical accessibility and lack of amenities.

Overall the respondents’ results were tallied to identify the perceived importance of various storage issues. The resulting rankings are shown in Table 6.

**Table 6 – Perceived importance of storage issues – survey responses**

Rank	Issue
1	Cost
2	Physical accessibility
3	Dinghy storage
4	Amenity
5	Lack of parking spaces
6	Waiting list

## 6.3 Key Findings

Evidence of unmet demand for boat storage in Lake Macquarie and Tuggerah Lakes is not as prevalent as in some regions, particularly in and around the Sydney region where, for example, there are long waiting lists for private mooring licences. Storage requirements in the Region are also influenced by the high percentage of trailer boats. As shown in Chapter 5, this places higher demands on the need for access infrastructure however creates less demand for on-water storage methods than in some other regions.

As noted in 3.1.4, growth in vessel ownership in the region is forecast to increase by at least 2.9% annually. This excludes paddle craft and other vessels which do not require registration. Anecdotal evidence suggests that the popularity of these craft is growing at an even higher rate.

Some growth will therefore be required across all storage categories in order to keep pace with demand. In 2013, the MMC developed the Sydney Harbour Boat Storage Strategy that examined the existing capacity and forecast demand for boat storage in Sydney Harbour. The

Strategy seeks to identify the best way to accommodate growth by planning for the mix of storage facilities best suited to meet the characteristics of vessels and usage in the region.

Adopting the same principles in the Lake Macquarie and Tuggerah Lakes region will help achieve a common understanding of future boat storage requirements across all stakeholder groups.

Failing to plan for boat storage growth not only impacts on the experience of boaters in the region but also risks generating negative impacts for the community more broadly. Analysis from the consultation feedback and site visits has identified two immediate issues that would benefit from a more strategic approach to boat storage: dinghy storage; and the placement of moorings impacting on navigation.

### **Dinghy storage**

The proliferation of dinghies stored on the foreshores and reserves of Lake Macquarie was the biggest issue raised by numerous stakeholders in the region, including LMCC. It was also clear that of the multiple waterways in the 11 regions visited by the project team in developing Regional Boating Plans, problems caused by dinghy storage are far more prevalent in Lake Macquarie than any other waterway.

Through the Better Boating Program, Roads and Maritime has in the past provided grants to Councils in other regions to assist with the provision of dinghy storage racks. It is clear that the region would benefit from the provision of such storage racks. However, a more holistic dinghy management strategy is required to remove the existing dinghies, reduce the overall number of dinghies, and to ensure new storage facilities are effectively managed and maintained effectively.

### **Moorings bays**

The other major issue identified through the analysis of Lake Macquarie was the placement of moorings in bays, in particular, during peak times and in proximity to other commercial storage sites. Examples of bays where it was suggested that moorings are impacting on navigation include Marmong Point, Wangi Wangi, Belmont, Croudace Bay, Swan Bay and Toronto. Some of these bays are in close proximity to yachting/sailing and other clubs and are also adjacent to designated sailboat racing areas.

Demand analysis suggests that a significant increase in mooring numbers is not required, however that some growth will be needed to accommodate forecast demand. This presents a challenge of increasing numbers while at the same time minimising the footprint of mooring areas.

The allocation of moorings in Lake Macquarie is currently determined in line with the Lake Macquarie Mooring Management Plan, which was developed by the then Waterways Authority of NSW in 2002. The Mooring Management Plan is currently due for review; however moorings need to be considered as part of an overall approach for managing boat storage in the Region. For example, there may be opportunities where Government funding can assist in the establishing public marina facilities that could increase storage capacity while reducing the size of mooring fields.

The Mooring Management Plan also needs to be informed by a State-wide review of the administrations of moorings, recently commenced by MMC. A Moorings Review Issues Paper was released for comment in March 2014 seeking comments on a number of reform options for the ways moorings are managed across NSW including how mooring numbers are determined, how to improve waiting lists and whether different types of mooring apparatuses can be used to improve overall capacity. Further information about the Moorings Review is available on the [Transport for NSW website](#).

## 6.4 Actions

### i. Establish a Lake Macquarie Tuggerah Lakes Boat Storage Delivery Program

MMC and Roads and Maritime will work with LMCC and WSC to develop a Lake Macquarie Boat Storage Delivery Program.

The Program will be informed by identifying growth targets for the different categories of boat storage in consultation with LMCC, boating stakeholders and the community. The types of projects to be funded under the Program could include dinghy storage racks, passive craft storage facilities and potentially publicly operated marina facilities.

Potential opportunities to improve storage are identified in the analysis contained in Chapter 8.

### j. Provide dinghy storage racks and develop a Dinghy Storage Management Strategy

A key component of the Lake Macquarie Tuggerah Lakes Boat Storage Delivery Program will be the provision of dinghy storage racks to support a Dinghy Storage Management Strategy. Financial support will be provided to assist LMCC in developing and implementing the Strategy including reducing total dinghy numbers by disposing of unused vessels and facilitating opportunities for third parties (eg sailing clubs) to establish and operate local shared dinghy systems.

### k. Review organisation of moorings to reduce clutter in popular bays

The Lake Macquarie Tuggerah Lakes Boat Storage Delivery Program will identify the expected growth in mooring capacity required to accommodate growth in vessel numbers over the next decade. The number of new moorings required will be informed by the extent of opportunities available to consolidate on-water storage through the provision of alternate mooring types or the establishment of alternate public on-water storage facilities.

Roads and Maritime will then work LMCC and WSC to review mooring numbers and configurations on a location-by-location basis informed by the overall growth target and the objective of reducing restrictions on navigation.

Figure 15 – Examples of storage issues identified during regional site visits

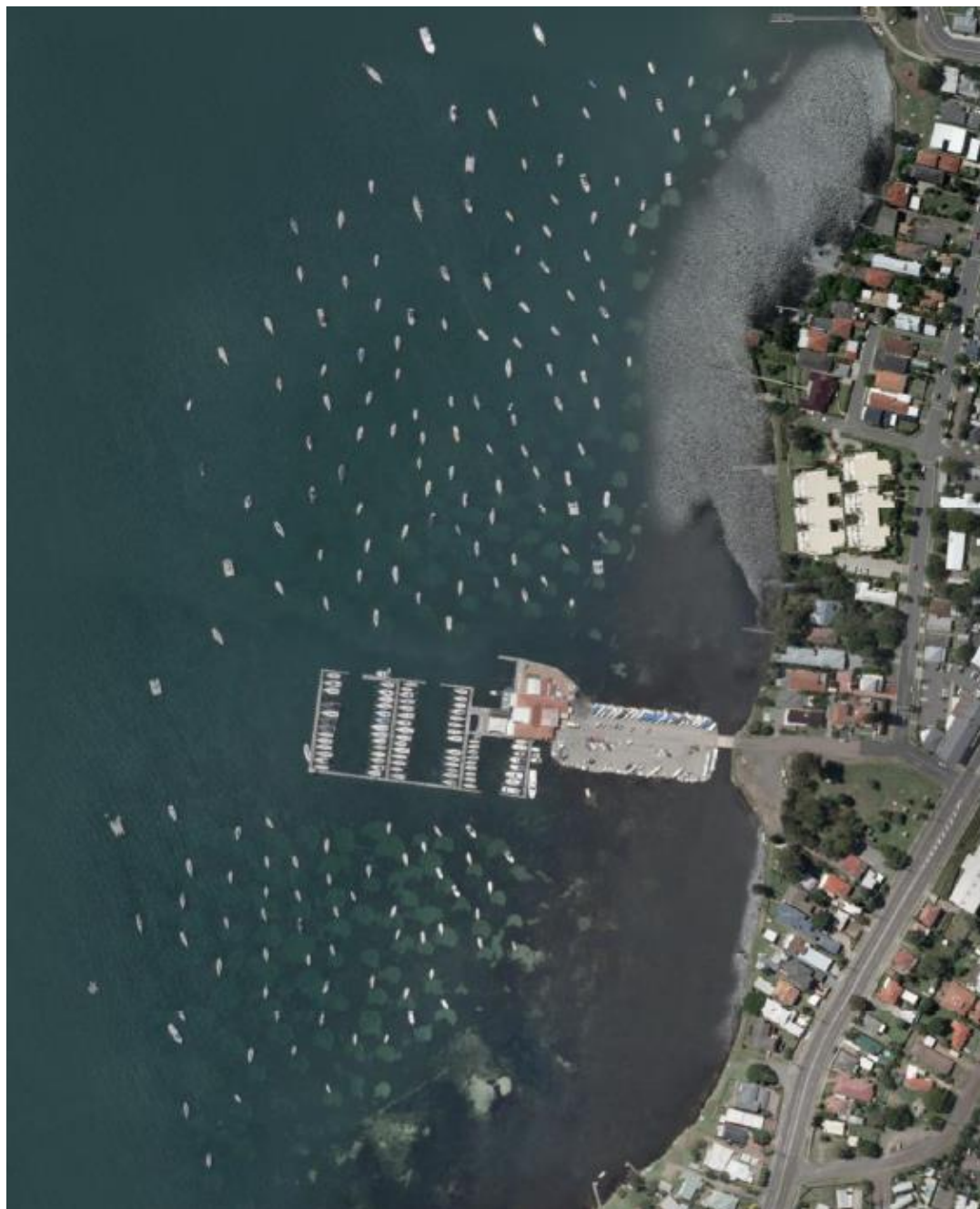


Use of public land for dinghy storage around Croudace Bay



Example of a recently installed dinghy storage rack in Folly Point, Cammeray that could be considered

**Figure 16 – Example of a bay with cluttered moorings – Belmont**





## 7. Other issues raised during consultation

### 7.1 Overall Analysis of Other Issues

The objective of the Regional Boating Plan is to enhance the boating experience in NSW by identifying the priority actions to be taken to improve boating safety, access and storage in each region. These actions will be used to inform funding to be provided under a new boating infrastructure partnership program and to help shape future maritime policy decisions.

In consulting with stakeholders and the general public on the development of the Regional Boating Plan a number of other issues were identified that do not fit neatly into the categories of safety, access or storage. Nonetheless, they incorporate suggestions on how to improve the boating experience and management of NSW's waterways.

A snapshot of other issues raised for the Lake Macquarie Tuggerah Lakes region is provided at 7.2 below. Where relevant, these issues will be considered in the implementation of the Actions identified in Chapters 4, 5 and 6. The other issues will also be raised with the relevant Government agency or Council that has primary responsibility for the issue.

### 7.2 Snapshot of Other Issues

Short descriptions of the other issues are listed below:

- Planning instrument for Lake Macquarie, in particular zoning could impact on the delivery of the strategies and actions from this study.
- The lengthy processing time of development approvals for on- water amenities with waterfront access was seen as unnecessary and an impediment to progress.
- There are mixed views on the environmental impacts from boating such as the contribution of boating to bank erosion versus other catchment-wide causes.
- There is a view from some boaters believe that there are too many authorities and there is a need for more formal consultation processes between authorities and the recreational boating community.
- There were mixed views about the impacts on seagrass from boating.
- Noise from vessels, in particular at boat ramps in residential areas, is considered a nuisance by some members of the community. The counter-view expressed is that residents should expect such if they purchase near an existing ramp.

- Concerns were raised about the need for increased transparency and improved value for money from revenue raised by recreational boating.
- Some boaters suggested the need to keep the 'feeling' of Lake Macquarie as being primarily about small sailing, power and passive craft.



## 8. Detailed Opportunities to support Actions

### Summary of Actions

The waterways in the Lake Macquarie-Tuggerah Lakes region are highly utilised and provide economic, social and environmental benefits for the community. The current infrastructure requires modernisation, expansion and future proofing and is in need of investment to enhance the experience of recreational boaters. As seen in Chapters 4, 5 and 6, the region will most benefit from the following range of actions:

- A. Renew and refresh navigations aids
- B. Review strategies to improve user behaviour
- C. Improve signage clarity and visibility
- D. Improve the condition of boat ramps and other access facilities at key locations
- E. Increase trailer parking capacity
- F. Provide additional courtesy moorings at popular locations
- G. Maintain a safe navigation channel to the ocean through Swansea Channel
- H. Maintain utility of existing access facilities in Tuggerah Lakes



- I. Establish a Lake Macquarie Tuggerah Lakes Boat Storage Delivery Program
- J. Provide dinghy storage racks and develop a Dinghy Storage Management Strategy
- K. Review organisation of moorings

Table 7 details the key Safety, Access and Storage issues for the Region on a location by location basis, including potential solutions and opportunities to improve the boating experience at each location. The table is based on the comprehensive analysis of stakeholder consultation (including BSOs, Councils, clubs and organisations, online survey respondents and other individuals), combined with the review of available data, literature, particularly documents produced by LMCC and WSC, and site visits.

The potential solutions and opportunities identified in Table 7 are to be the subject of further consultation with LMCC and WSC, other stakeholder groups and the broader community to assist in identifying the priority projects for the Region.

**Table 7 - Location based key issues, potential solutions and opportunities**

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
<b>Lake Macquarie</b>						
Warners Bay			✓	General access	Shallow water limits access to the jetty at Warners Bay (The Esplanade)	Promote passive craft and tender access Review need for courtesy moorings in surrounding deep water Supports Action F
Eleebana			✓	Safety	Slippery boat ramp Boat ramp is too short in length to access water at low tide	Refer to council for ongoing maintenance Increase boat ramp length Supports action D
Croudace Bay			✓	Capacity	Need for new jetty at boat ramp to cater for	Provide new jetty at Croudace Bay (T.H. Halton Park)

<sup>2</sup> Key: S – Safety; St – Storage and A - Access

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
(includes Valentine and Sheppards Creek)					capacity and emergency response	Supports Action D
			✓	Amenity	Insufficient pump-out facilities	Provide strategic pump-out facilities at accessible locations within region Supports Action D
	✓			User Conflict	Inadequate or confusing signage in shared use area. No physical barrier delineating swimming area	Review need for physical barrier to delineate swimming area and appropriate signage Supports Actions B and C
			✓	Capacity	Vessels constantly moored at Valentine Public Jetty adjacent to swimming area near Croudace Bay Sailing Club restricting other users as time limits are not enforced or not applicable	Review enforcement arrangements and assess opportunities to install courtesy moorings. Supports Action F
			✓	Amenity	Insufficient fish cleaning facilities	Provide fish tables at Valentine (Bennett Park) Supports Action D
			✓	Capacity	Insufficient capacity at jetty	Upgrade Valentine public jetty (adjacent to swimming area near Croudace Bay Sailing Club) Supports Action D <i>Note: Council currently in concept design phase.</i>
		✓		Capacity	Shepherd's Creek is a closed mooring area.	Ongoing discussions with Council regarding bed ownership issues.

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
Belmont			✓	Capacity Condition Car/trailer parking	Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access  Limited car and/or trailer parking at Lake Macquarie Yacht Club (LMYC) and Belmont South (Paley Crescent) boat ramp	Provide access pontoon or jetty at the Belmont South (Paley Crescent) boat ramp  Formalise car/trailer parking at Belmont South (Paley Crescent) and off Ada Street adjacent to LMYC  Supports Action D and E
			✓	Condition	Poorly maintained and/or designed jetties that can damage vessels	Review and upgrade fendering systems at Belmont Wharf (Brooks Parade)  Supports Action D
Marks Point			✓	Condition Capacity Car/trailer parking Safety	Boat ramp surface and surrounding surface needs maintenance, sealing or upgrading  Need for lighting at ramp car park	Review and upgrade lighting, as well as the ramp's surface and surrounding surfaces at Marks Point (Naru Reserve)  Supports Action D
Black Ned's Bay		✓	✓	Amenity Condition Accessibility to moorings	Location and condition of private moorings (fore and aft) impact on navigation.	Replace and relocate fore and aft moorings to improve navigation in the bay and improve visual amenity  Supports Action K
Swansea Channel	✓		✓	Navigation aids Hazards General access	Navigation aids are inadequate and are not tailored to changes to sand bar and channel conditions  Shallow and irregular channels resulting in	Renew and refresh navigation aids  Ongoing dredging strategy in line with <i>Towards a Sustainable Framework for Navigation in Swansea Channel</i>

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
					unsafe navigation and access issues Dangerous ocean access due to shallow bar crossing	Supports Actions A and G
	✓			Vessels not observing correct distance	High multi-user activity resulting in conflicting usage of waterway	RMS to review signage at Swansea Bridge with respect to divers Supports Actions B and C
Coon Island			✓	Capacity Condition Safety	Insufficient infrastructure (jetties/pontoons) for land access or safe waterway access Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading Slippery boat ramp	Better Boating Program funding allocated in 2013/14 for pontoon access and to consolidate and rebuild boat ramp facilities. Monitor progress at Thomas Humphreys Reserve Refer to council for ongoing maintenance Supports Action D
Swansea Flats			✓	Car/trailer parking Safety	Limited car and/or trailer parking at boating infrastructure sites. Need for lighting at ramp car park	Upgrade lighting and formalise car/trailer parking at Swansea (The Esplanade) Supports Action E
Murrays Beach			✓	Accessibility to moorings	Limited quantity and access to courtesy moorings despite popularity of area for boating. No designated mooring area.	Review the need for additional courtesy moorings and a designated mooring area Supports Action F
Cams Wharf			✓	Amenity Condition	Inadequate or lack of facilities including lighting at waterway access points to meet current demand	TfNSW to liaise with DPI to provide fish tables at Cams Wharf (Cams Wharf Road) Upgrade boat ramp surface, lighting and formalise

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
				Car/trailer parking Capacity	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading  Limited car and/or trailer parking at boating infrastructure sites  Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access	overflow car/trailer parking at Cams Wharf (Cams Wharf Road)  Provide jetty at Cams Wharf (Cams Wharf Road)  Supports Actions D and E
Nords Wharf	✓		✓	Safety	Public safety concern with public interaction with boaters when launching vessels  Need for lighting at ramp car park	Installation of a barrier fence at Nords Wharf (Branter Road)  Upgrade lighting at Nords Wharf (Branter Road)  Supports Actions D
Crangan Bay			✓	Accessibility to moorings	Limited quantity and access to courtesy moorings	Provide funding for up to two courtesy moorings  Supports Action F
Gwandalan			✓	Capacity Car/trailer parking	Expansion of boat ramp required for safe use and to cater for demand  Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access  Limited car and/or trailer parking at boating infrastructure sites	Upgrade boat ramp at Gwandalan (Garema Road), consider widening  Provide jetty at Gwandalan (Garema Road)  Formalise limited car/trailer parking space available at Gwandalan (Garema Road)  Supports Action D

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
Pulbah Island			✓	Accessibility to moorings	Limited quantity and access to courtesy moorings	Provide up to two courtesy moorings on the southwest side of Pulbah Island Supports Action F
Summerland Point	✓			Vessels not observing correct distance	Towing boats utilising areas used by swimmers Conflicting usage of waterway	RMS to review signage and consider shared zone Supports Actions B and C
			✓	Capacity	Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access	Upgrade access jetty at Boat Harbour, Summerland Point Supports Action D
Sandy Beach	✓			Vessels, in particular PWCs not observing correct distance off Noise	Towing boats utilising areas used by swimmers High multi-user activity resulting in conflicting usage of waterway	RMS to review signage Supports Actions B and C
Chain Valley Bay	✓		✓	Capacity	Expansion of boat ramp required for safe use and to cater for demand Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access	Upgrade boat ramp at Chain Valley Bay (Lloyd Avenue), consider widening. Provide jetty at Chain Valley Bay (Lloyd Avenue) Supports Actions D

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
Mannering Park	✓			Navigation aids	Existing navigation aids are either not visible or unclear	Renew and refresh navigation aids Supports Action A
Wyee Point			✓	Condition Amenity	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading  Inadequate or lack of facilities at waterway access point	Upgrade and formalise a single lane boat ramp and formalise the limited car/trailer parking space available at Wyee Point (Government Road)  Supports Action D
Morriset Park			✓	Amenity Capacity	Inadequate/insufficient facilities  Need for new jetty to cater for capacity and emergency response use	Upgrade Morisset Park (Lakeview Road) amenities including lighting and parking  Provide new jetty at Morisset Park (Lakeview Road)  Supports Action D
Sunshine			✓	Capacity Car/trailer parking	Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access  Limited car and/or trailer parking at boating infrastructure sites	Provide Jetty at Sunshine (Sunshine Parade)  Formalise overflow car/trailer parking at Sunshine (Sunshine Parade)  Supports Actions D and E
Balcolyn	✓		✓	Capacity Condition Car/trailer parking Condition	Infrastructure such as jetties/pontoons not provided for safe waterway access  Boat ramp surface and surrounding surface needs maintenance, sealing or upgrading  Limited car and/or trailer parking at boating	Review the need for a jetty at Shingle Splitters Point and/or Balcolyn Hall Reserve taking into account navigation issues and prevailing conditions  Review and upgrade the ramp, surrounding surface and car/trailer parking at Balcolyn Hall Reserve. Undertake feasibility study to improve parking at Shingle Splitters

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
					<p>infrastructure sites</p> <p>Boat ramps are exposed to north-east trade winds often making access difficult and unsafe</p>	<p>Point dependant on location of potential jetty in Balcolyn</p> <p>Provide signage to identify hazards in adverse weather conditions and redirect to alternative boat ramp(s) such as Shingle Splitters Point in Balcolyn</p> <p>Supports Actions C, D and E</p>
Bonnells Bay			✓	Condition	Boat ramps are exposed to north-east trade winds often making access difficult and unsafe (Pendlebury Park)	<p>Provide signage to identify hazards in adverse weather conditions and redirect to alternative boat ramp(s) such as Shingle Splitters Point in Balcolyn</p> <p>Supports Action C</p>
	✓			Hazards	Unused/unmaintained or obsolete infrastructure becoming navigation hazards	<p>RMS to investigate and action</p> <p>Supports Action A</p>
Dora Creek			✓	Capacity Condition Amenity Signage Speed Moorings	<p>Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access</p> <p>Boat ramp surface and surrounding surface needs maintenance, sealing or upgrading</p> <p>Non-existent restroom facilities</p>	<p>Provide new jetty at Dora Creek (Dora Street)</p> <p>Upgrade surface surrounding boat ramp at Dora Creek (Dora Street)</p> <p>Install amenities at Dora Creek (Dora Street)</p> <p>Supports Action D</p>



Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
Wangi Wangi		✓		Storage availability	Moorings originally located too close to each other or altered through private maintenance leading to issues with safe mooring spacing	BSOs to review placement of moorings Refer to current pilot project for seagrass and environment friendly moorings – Department of Primary Industries (Fisheries) Supports Actions I and K
			✓	Capacity	Vessels constantly moored at public access facilities restricting other users as time limits are not enforced or not applicable	Review enforcement arrangements and assess opportunities to install courtesy moorings. Supports Action F
			✓	Condition Car/trailer parking	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading  Limited car and/or trailer parking at boating infrastructure sites, which may lead to difficult access to car and/or trailer	Review and upgrade boat ramp at Wangi Wangi (Kent Place) Review and upgrade the car park at Wangi Wangi (Kent Place) Supports Actions D and E
			✓	Condition	Poorly maintained and/or designed jetties that can damage vessels/fenders	Review and upgrade jetty and fendering systems at Wangi RSL Jetty (off Kent Place/Watkins Road) Supports Action D
			✓	Condition	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading  Wangi Tourist Park (NPWS) ramp incorrectly listed on RMS boat ramp locator as Market	RMS to review and update the boat ramp locator Review requirements to upgrade Wangi Tourist Park (NPWS) boat ramp following upgrade at Wangi Wangi (Kent Place)

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
					Street	Supports Action D
			✓	Amenity	Inadequate pump-out facility at Market St (Workers Jetty)	Upgrade pump out and consider commercial management Supports Action D
Balmoral			✓	Condition Car/trailer parking	Boat ramp surrounding surface needs maintenance, sealing or upgrading Poor condition of car and/or trailer parking at boat ramp	Upgrade surface surrounding boat ramp and formalise parking at Balmoral (Balmoral Place) Supports Action D
Rathmines			✓	Amenity Condition	Inadequate/insufficient facilities Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading	Upgrade lighting at Rathmines Park (seaplane ramp) & Rathmines (Styles Point) Review and upgrade Rathmines Park (seaplane ramp) Supports Action D
	✓		✓	Safety	Exposed boat ramp can be unsafe and can make access difficult	Provide jetty at Rathmines Park (seaplane ramp) Supports Action D
			✓	Accessibility to moorings	Limited quantity and access to courtesy moorings	Review the need for additional courtesy moorings Supports Action F
Kilaben Bay			✓	Amenity	Poor pump-out facilities	Upgrade pump out and consider commercial management Supports Action D

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
Coal Point		✓		Storage availability	Moorings originally located too close to each other or altered through private maintenance leading to issues with safe mooring spacing	BSOs to review placement of moorings Supports Actions I and K
			✓	Amenity Car/trailer parking	Inadequate/Insufficient facilities	Upgrade Coal Point (Biriban Reserve) amenities. TfNSW to liaise with DPI to provide fish tables Supports Action D
Carey Bay		✓		Storage availability	Moorings originally located too close to each other or altered through private maintenance leading to issues with safe mooring spacing	BSOs to review placement of moorings Supports Actions I and K
Toronto			✓	Amenity Condition Car/trailer parking	Inadequate or lack of facilities at waterway access points to meet current demand Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading Limited car and/or trailer parking at boating infrastructure sites	Upgrade ramp surface at Toronto (Lions Park) Upgrade lighting and formalise car/trailer parking at Toronto (Lions Park) Supports Actions D and E
			✓	Condition Car/trailer parking Safety	Poorly maintained and/or designed jetties that can damage vessels/fenders Limited car and/or trailer parking at boating infrastructure sites, which may lead to difficult access to car and/or trailer	Review and upgrade fendering systems at Toronto Wharf (Wharf Street) Increase capacity of parking at Toronto (Wharf Street) Supports Action E

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
Blackalls Park			✓	Capacity	Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access	Provide access jetty at Blackalls Park Supports Action D
Bolton Point			✓	Amenity Car/trailer parking Condition	Boat ramp is too short in length for low water levels  Inadequate or lack of facilities at waterway access points to meet current demand  Limited car and/or trailer parking at boating infrastructure sites	Increase boat ramp length and upgrade surface Upgrade lighting  Review and upgrade car/trailer parking at Bolton Point (Middle Point Road)  Supports Actions D and E
Marmong Point		✓		Waiting list	Extensive wait to gain a private mooring	Review commercial opportunities to increase and improve storage  Supports Action I and K
			✓	Capacity Amenity	Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access  Poor or non-existent restroom facilities	Provide jetty at Marmong Point (Nanda Street) Install amenities at Marmong Point (Nanda Street) Supports Action D
Speers Point			✓	Car/trailer parking	Cars utilising car and trailer specific parking spaces	Provide signage and enforce  Supports Action E
Lake Macquarie in General		✓		Storage availability	Limited storage capacity and the use of mooring minders restricting availability  Cluttering of bays due to sizes of mooring	Review cluttering of bay and commercial opportunities to increase and improve storage  Supports Action K

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
					areas	
<b>Tuggerah Lakes</b>						
Buff Point			✓	Condition	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading	Review feasibility of maintaining and upgrading access at Buff Point boat ramp (Edgewater Park, Narambi Road)  Supports Actions D and H
Budgewoi			✓	Condition	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading  Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access  Limited car and/or trailer parking at boating infrastructure sites	Review and upgrade Budgewoi boat ramp (John Slade Reserve, off Central Coast Highway)  Provide jetty at Budgewoi (John Slade Reserve, off Central Coast Highway)  Formalise limited car/trailer parking space available at Budgewoi (John Slade Reserve off Central Coast Highway)  Supports Actions D and H
			✓	Condition	Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access	Review and upgrade jetty at Budgewoi channel (Budgewoi Town Jetty, off Diamond Head Drive)  Supports Actions D and H
Toukley			✓	Safety Condition	Need for lighting at ramp car park  Boat ramp surface needs maintenance, sealing or upgrading	Install lighting and upgrade the ramp surface at Toukley (Osborne Park, adjacent to Dragon Boat Club)  Supports Actions D and H

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
Gorokan			✓	Condition	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading  Insufficient infrastructure (jetties/pontoons) for temporary land access or safe waterway access	Upgrade boat ramp at Wallahra Point Park (off Wallahra Road, Gorokan)  Upgrade jetty at Wallahra Point Park (off Wallahra Road, Gorokan)  Supports Actions D and H
Eel Haul Bay			✓	Capacity	Inadequate or lack of access infrastructure and amenities limits waterway usage	Review installation of access facility in Magenta  Supports Action D and H
North Entrance			✓	Capacity	Expansion of boat ramp required for safe use and to cater for demand	Upgrade boat ramp at North Entrance Foreshore Reserve boat ramp (off Central Coast Highway, North Entrance), consider widening  Supports Actions D
The Entrance	✓			Hazards	High multi-user activity resulting in conflicting usage of waterway	RMS to review signage  Supports Actions B and C
	✓		✓	Safety Car/trailer parking	Limited car and/or trailer parking at boating infrastructure sites, which may lead to difficult access to car and/or trailer	Provide signage and information to direct users to Picnic Point boat ramp instead of small ramp at Marine Parade  Install removable bollards to limit usage of boat ramp off Marine Parade to emergency services  Supports Actions C and H
Killarney			✓	Condition	Boat ramp surface and/or surrounding	Review and upgrade Killarney Vale boat ramp (The

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
Vale					surface needs maintenance, sealing or upgrading	Peninsula) Supports Actions D and H
Wyong River		✓	✓	Storage availability Car/trailer parking	Limited numbers of moorings despite popularity of area for boating and limited demand for space Limited car and/or trailer parking at boating infrastructure sites	Review cluttering of bay and commercial opportunities to increase and improve storage Formalise parking at Tacoma boat ramp (Wolseley Avenue) Supports Actions E, H, I and K
Wyongah			✓	Condition	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading	Review and upgrade Wyongah boat ramp and surrounding car park surface (Oakland Street, Wyongah) Supports Actions D and E
Norah Head			✓	Condition	Boat ramp surface and/or surrounding surface needs maintenance, sealing or upgrading	BBP funding allocated over several years. The site is subject to a major rebuild from April 2014 to December 2014. Supports Action D
Tuggerah Lakes in General	✓			Hazards	Unused/unmaintained or obsolete infrastructure becoming navigation hazards	RMS to investigate and action Supports Actions A and H
			✓	Capacity General access	Inadequate or lack of access infrastructure and amenities, as well as restricted navigation in proximity to the shoreline, limits waterway usage	Review of current studies to work with Council to increase boating access to Tuggerah Lakes foreshore Clean-up of rack in popular boating areas and undertake

Location	Issue Category			Issues Summary	Description of Issue	Potential Solutions and Opportunities
	S	St	A <sup>2</sup>			
					Sea weed (rack) build up in particular at Pelican Island and foreshore adjacent to Picnic point	Supports Action H
		✓		Storage availability	Limited numbers of moorings due to water depth and restricted navigation	Review of current studies to work with Council to increase boating access and storage across Tuggerah Lakes foreshore  Supports Action I
<b>Region wide</b>						
Region-wide	✓		✓	Disabled access	Infrastructure not providing for disabled/less abled access	Review availability for disabled/less abled access points and implement management strategy to cater for future demand
Region-wide	✓			Speed Wash	Waterway users not acting in accordance with guidelines and safe practices	TfNSW and RMS to review 4 and 8 knot zones in NSW  TfNSW and RMS to review wash reduction opportunities in NSW



## 9. References

1. Australian Bureau of Statistics (2011), *2011 Census QuickStats*, Australian Bureau of Statistics, Canberra, viewed 18 February 2014, <[http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2011/quickstat/LGA14650?opendocument&navpos=220](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/LGA14650?opendocument&navpos=220)>
2. Dickinson, T.G., Roberts, D.E., Geary, M., McPherson, R., Dye, A., Muston, R. (2006) *Tuggerah Lakes Estuary Management Plan*, Prepared for Wyong Shire Council and Department of Natural Resources, BIO-ANALYSIS Pty Ltd: Marine, Estuarine and Freshwater Ecology, Narara
3. Lake Macquarie City Council (2014), *Boatramp rehabilitation program & Jetty construction program*, March 2014, Updated for Regional boating plan.
4. NSW Maritime (2010), *NSW Boat Ownership and Storage Report*, July 2010, NSW Government
5. Office of Boating Safety and Maritime Affairs (OBSMA), (2012), *Boating Safety Plan November 2012: Botany Bay | Georges River | Woronora River | Cooks River*, NSW Government, Transport Maritime
6. Office of Boating Safety and Maritime Affairs (OBSMA), (2013), *Sydney Harbour and its Tributaries – Draft Boating Safety Plan*, NSW Government, Transport Maritime
7. Patterson Britton & Partners Pty Ltd (2007), *Trinity Point Marina Proposal Berth Demand Study*, prepared for Johnson Property Group, March 2007.
8. Umwelt Environmental Consultants, (2012a), *A Sustainable Framework for Navigation in Swansea Channel*, prepared for Department of Primary Industries, Catchments & Lands, NSW Government, viewed 19 February 2014, <[http://www.swanseachannelframework.com.au/?\\_sm\\_au\\_=iVVkn31fD3M65jJF](http://www.swanseachannelframework.com.au/?_sm_au_=iVVkn31fD3M65jJF)>
9. Umwelt Environmental Consultants, (2012b), *Towards a sustainable framework for navigation in Swansea Channel*, prepared for Department of Primary Industries, Catchments & Lands, NSW Government
10. Waterways, (2002), *Lake Macquarie Mooring Management Plan*, Waterways Authority
11. Wyong Shire Council (2010), *Review of Boat Ramps in Wyong Shire*, June 2010.

# Appendices

## Appendix A – Details of Stakeholder Consultation

In addition to all relevant internal stakeholders, the following external stakeholders were formally consulted as part of the consultation for this region. Some representative groups have a seat on a related advisory committee and may have been consulted through that process.

**Appendix A – Table 1 – External stakeholders consulted – State-wide level**

Agency / Group Represented
Australian Hydrographic Service (RAN)
Australian Jet Sports Boating Association
Australian Power Boat Association
Bass and Flinders Cruises
Boat Owners Association NSW (BOA)** (Also MAC member)
Boating Industry Association NSW (BIANSW)*
Captain Cook Cruises
Coastal Cruising Club of Australia
Commercial Vessel Advisory Group (CVAG)
Commercial Vessels Association NSW (CVANSW)*
Department of Planning and Infrastructure
Department of Primary Industries (Fisheries)
Dragonboats NSW
Fishing Industry Advisory Group
Harbour City Ferries
Hunts Marine
Manly Hydraulics Laboratory
Marina Association NSW (MANSW)*
Marine Compliance Taskforce
Marine Estate Management Authority
Marine Rescue NSW
Marine Teachers Association of NSW
Maritime Advisory Council

Agency / Group Represented
Maritime Safety Training NSW
Ministerial Fisheries Advisory Council (MFAC)
National Parks and Wildlife Service
NSW Canoe
NSW Fishing Industry Training Committee
NSW Police Force (Marine Area Command)
NSW Rowing Association
NSW Trade and Investment (Crown Lands)
NSW Trade and Investment (Fisheries)
NSW Water Ski Federation
NSW Wavesailing (as part of NSW Water Ski Federation)
Paddle NSW
Personal watercraft representative as member of Recreational Vessels Advisory Group
PWC Representative
Recreational Fishing Alliance of NSW** (Also MAC member)
Recreational Vessel Advisory Group (RVAG)
Roads and Maritime Services
Rowing NSW
Sailability NSW
Scuba Clubs Association of NSW
Seaplane Pilots Association of Australia
Surf Life Saving NSW
Sydney Fast Ferries
Sydney Harbour Federation Trust
Sydney Ports Corporation (SPC)
Transport Safety Victoria
Yachting NSW** (Also MAC member)

## **Appendix B** – Maps

MAP OF  
**Lake Macquarie**

0 0.25 0.5 0.75 1 1.25 2.5  
km

**Line symbols**  
 ○○○○ Overhead Cable Crossing  
 — Structure

**Restricted Waters**  
 4 Knots Zone  
 6 Knots zone  
 No Towing of Persons  
 6 Knots Zone

**Navigation Aids**  
 Pink Beehive Public Mooring

**Restricted Activities and Cautions**  
 + Dangerous Area Breaks at Times  
 ⚠️ Visible Wreck  
 ⚠️ No Wash Zone  
 ⚠️ All or Power Boats Prohibited Area  
 ⚠️ Personal Watercraft Prohibited Area  
 ⚠️ Four Knot Speed Limit Area  
 ⚠️ Eight Knot Speed Limit Area  
 ⚠️ Known Seaplane Operating Area  
 ⚠️ Warning Overhead Power Cables  
 ⚠️ Caution Entrance Bar Crossing  
 ⚠️ Caution Shallow Water  
 ⚠️ Caution Submerged Rocks  
 ⚠️ No Anchoring Submarine Cable  
 ⚠️ Six Knot Speed Limit Area

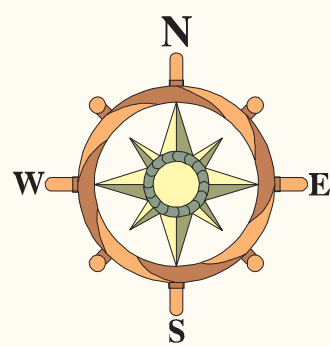
**Boating Facilities**  
 Unformed or Hand Launching Area  
 Formed Surface Launching Ramp  
 Launching Ramp Parking & Facilities  
 Fuel Available  
 Public Wharf Jetty or Landing  
 Marina Boatshed or Boat Hire  
 Public Vessel Pumpout Facility  
 Private Vessel Pumpout Facility

**General Information**  
 Public Toilet  
 Marine Rescue NSW Base

Water depth in metres  
 0  
 2  
 5  
 10  
 20  
 40

Land  
 Sand  
 Nat.Pk.  
 Park  
 Mangroves

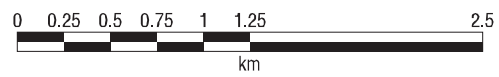
**NSW GOVERNMENT**  
**Transport Roads & Maritime Services**



**DISCLAIMER!** This map is not intended to be used for navigational purposes and Roads and Maritime Services takes no responsibility for the accuracy of the content herein.  
 Map Printed: May 2014. Copyright Roads and Maritime Services



MAP OF  
**Tuggerah, Budgewoi and Munmorah Lakes**



Line symbols

Overhead Cable Crossing Structure

Restricted Waters

4 Knots Zone 8 Knots zone No Towing of Persons No Vessels Permitted

Restricted Activities and Cautions

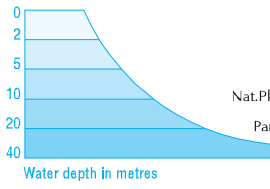
Dangerous Area Breaks at Times No Towing Zone Eight Knot Speed Limit Area Caution Entrance Bar Crossing Caution Submerged Rocks  
No Wash Zone Four Knot Speed Limit Area Warning Overhead Power Cables Caution Shallow Water

Boating Facilities

Uniformed or Hand Launching Area Launching Ramp Parking & Facilities Fuel Available Public Wharf Jetty or Landing Marina Boatshed or Boat Hire  
Formed Surface Launching Ramp

General Information

Public Toilet Marine Rescue NSW Base



NSW GOVERNMENT  
**Transport Roads & Maritime Services**

**DISCLAIMER!** This map is not intended to be used for navigational purposes and Roads and Maritime Services takes no responsibility for the accuracy of the content herein.  
Map Printed: May 2014. Copyright Roads and Maritime Services

