



# Perth Recreational Boating Facilities Study Review 2019



Fremantle Fishing Boat Harbour (centre), Success Harbour (on left), Challenger Harbour and Entrance to Swan River (background), Rottnest Island (horizon). 2019



# Executive Summary

The *Perth Recreational Boating Facilities Study 2008* (the Study) by the Department of Transport was published in February 2009. At that time, the Western Australian economy was experiencing a commodities-driven boom which in turn drove income and population growth. This contributed significantly to the expansion of the Perth recreational boating fleet and the demand for associated facilities.

Against this backdrop, the Study forecast the number of registered recreational vessels (“vessels”) in the Perth metropolitan area to grow from a predicted 49,261 in 2008 to 84,857 by 2025. The Study provided infrastructure development options to address this growth. 2025 was selected as the planning horizon because it represented the extent of credible growth forecasts for Perth at that time. Importantly, the Study has performed as a planning guide for boating facility development, not only for the State Government but also for Local Governments and private developers.

During the period 2008 to 2018 the Study forecast the number of vessels to rise to 67,759, with recommendations to provide 19 extra boat ramp lanes and 2590 extra moorings. However, during this period the actual number of vessels rose to 52,715 (at December 2018) with only 6 boat ramp lanes and about 1,000 moorings being added.

As it is now a decade since the Study was released it is considered timely this Review is undertaken. The Review has been prepared by the Maritime Business Unit of the Department of Transport with a primary aim to inform forward planning for recreational boating facilities. The Review re-forecasts the growth in the number of vessels in the metropolitan area based on an updated dataset that includes boat registrations for the period 2008 to 2018. The planning horizon has been reset to 2036.

The Review acknowledges that boat ownership has returned to ‘pre-resources boom’ rates and estimates the number of registered recreational vessels in the Perth metropolitan area to grow to 73,040 by 2036, equating to about 29 vessels per thousand head of population. The 2036 estimate can be split into two categories of vessels based on length. Vessels less than 7.5 metres (and likely to be stored on trailers) are forecast to number 64,640 and vessels greater than 7.5 metres (and likely to be ‘moored’) are expected to number 8,400.

To meet the demand for recreational boating facilities across Perth an additional 18 ramp lanes (together with associated trailer parking) and 2,350 moorings (typically comprising boat pens, swing moorings and some boat stacker bays) are forecast to be required by 2036.

Recommendations for facility development to 2036 are outlined in section 7. Major development options include a marina at Ocean Reef (at the site of the existing boat launching facility), a major expansion to the Two Rocks boat harbour, a harbour extension at the Woodman Point Recreational Boating Precinct, a marina at Rockingham and additional boat launching facilities in the southern sector.

As important components of maritime facility planning, vessel registrations and facility usage will need to be monitored closely in the coming years so that schedules of infrastructure development can be adjusted accordingly.

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# 1. Introduction

The 2008 Perth Recreational Boating Facilities Study (the Study) examined the level of demand for recreational boating facilities in the Perth Metropolitan Area out to 2025 and proposed a schedule of development options to meet the demand. The demand projections were qualified at that time due to the dynamic nature of the data set on which the estimates were based. Periodic re-forecasting of boating growth and corresponding adjustments to schedules of infrastructure development were considered necessary to respond to ongoing changes in the recreational boating environment.

The Review (this document) compares the Study predictions to actual changes in the number of the registered recreational vessels in the Perth fleet. The recreational vessel and population data sets have been revised and updated accordingly.

The Review re-forecasts recreational vessel growth in the Perth Metropolitan area and identifies infrastructure development options to meet that demand.

The planning horizon for the Review is 2036, a further 18 years.

# 2. Scope

The scope of the Review consists of:

- Reviewing and analysing the growth in the Perth fleet of registered recreational vessels.
- Re-forecasting the growth of the Perth fleet.
- Re-estimating the recreational boating facility requirements.
- Providing boating facility development options and recommendations to meet the demand.

# 3. Review Parameters

## 3.1. The Study Area

The Perth metropolitan area was defined in the Study as being:

*“...navigable waters and shores including the near-shore waters of the Indian Ocean from Two Rocks in the north to Singleton in the south, together with the Swan River up to the Whiteman Bridge plus the Canning River up to the Kent Street weir”.<sup>1</sup>*

The Study Area for the Review remains the same. Refer to Maps 1, 2 and 3.

## 3.2 Recreational Boating Defined

The term “recreational boating” remains the same and refers to registered recreational vessels that navigate the waterways of the Study Area for recreational purposes and require formal boating facilities. The definition excludes commercial vessels such as fishing boats, charter boats, supply vessels, ferries, shipping and port related service vessels as well as other vessels that are not recorded on the Department of Transport database of registered recreational vessels (such as some sail-only vessels). The terms ‘vessel’ and ‘boat’ are interchangeable.

## 3.3 Recreational Boating Facilities Defined

For the purposes of the Review the term ‘boating facilities’ refers to facilities that are available for mooring, and, launching and retrieval (at boat ramps) of recreational vessels. Moorings can mean ‘wet’ boat pens (in public or private marinas and boat harbours), swing moorings (in gazetted mooring areas in the Swan and Canning Rivers and at Mangles Bay, Rockingham) or dry storage in boat stackers (in a marina setting). The term ‘boat ramp’ applies to public boat ramps to which the general public have access.

## 3.4 Planning Horizon

The planning horizon for the Review is extended out to 2036.

The planning horizon of 18 years (2018 to 2036) is consistent with the Study planning horizon of 17 years (2008 to 2025).

The planning horizon has been selected as it approaches the reliable forecasting limit of referenced data sets such as the Department of Planning, Lands and Heritage ‘WA Tomorrow Population Report No.11 (2019)’ and Department of Transport register of recreational vessels. The timeframe also recognises the lead times associated with planning and providing maritime infrastructure.

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<sup>1</sup> Source: *The Perth Recreational Boating Facilities Study 2008*, Technical Report No.444, Department of Transport, February 2009, p8

# 4. Growth in the Number of Registered Recreational Vessels

## 4.1 Vessel Categories and Storage

The Perth fleet of registered recreational vessels range in size from small dinghies to large luxury powered yachts. For planning purposes these vessels are typically categorised by length. The Review retains the two categories used in the Study - vessels less than 7.5 metres in length (and typically stored on a trailer) and vessels greater than 7.5 metres (and typically moored in a boat pen or on a swing mooring buoy, or, stored in a boat stacker).

Clearly, there are some storage variations for vessels above and below the 7.5 metre threshold. Some vessels of length greater than a reported length of 7.5 metres are stored on trailers. However, the length of a registered vessel will typically reference the hull length recorded at the time of applying for a Hull Identification Number from the Department of Transport. As such, the additional length taken up by bow sprits, outboard motors and other appendages will not be recorded. A vessel of registered length 7.5 metres can therefore be expected to exceed an overall vessel length of about 8.5 metres.

Vessels in the recorded length category of 7.5 metres to 8.5 metres are therefore considered, for storage purposes, to have overall lengths ranging from 8.5 metres to 9.5/10 metres. The 7.5 metre to 8.5 metre category of vessels represents about 3% of the Perth fleet of registered recreational vessels. Vessels in this range (as well as vessels of lesser length) have been observed as being increasingly stored in boat stacker bays where this type of facility is available in a boat harbour/marina setting. This is considered beneficial by harbour planners as these vessels still retain direct access to the protected waters of a harbour but do not require the water area that is occupied by a boat pen. For this reason, for future planning purposes, a nominal 50% of vessels stored in boat stacker bays are counted as moorings.

Boat stackers have a strong presence in the Fremantle Fishing Boat Harbour. A combined total of approx. 600 boat stacker bays are available, with almost all being occupied. Other stackers are located at the Aquarama marina (East Fremantle) where about 47 stacker bays are provided and at Hillarys Yacht Club with about 90 bays provided, again with most of the bays being occupied. Potential for additional boat stackers exists in Perth but with future locations possibly limited to new or expanded boating facilities where visual amenity is less likely to be an issue.

Some marinas also offer dry storage on hardstand areas within their boundaries. This type of storage is noted to exist primarily in Yacht Clubs, where a total of about 700 vessels are observed as being stored on the hardstand on trailer or jinkers. The ratio of powered trailer boats and sail-only boats is considered to be about 60:40 respectively. This type of storage is considered outside of the scope of the Review as the vessels are stored in 'private' facilities and the potential of existing sites to contribute to future expansion of the Perth fleet is considered limited.

Private recreational vessels 24 metres in length and above are commonly referred to as 'Super Yachts' and may possibly constitute an additional category. Traditionally, this type of vessel has been based in places such as the Mediterranean and the Caribbean. Perth is home to only a

few vessels of this size. The Study found evidence of trend growth and some consequential demand for facilities to accommodate these vessels. In 2018, 23 vessels of length 24 metres and above were registered to owners with residences in the Perth Metropolitan area (whereas in 2007 there were 18). Given the relatively small number of such large vessels, the Review does not forecast the growth of the Super Yachts separately but includes them in the general ‘greater than 7.5 metre’ category. However, for the future, where new or expanded boat harbours/marinas are planned, it is encouraged that mooring facilities (boat pens/berths) are considered for these larger vessels particularly where protected waters of at least 4 metres in depth (at Chart Datum) is available and local demand can be identified.

## 4.2 Vessel Registrations 2018

Local Government Authority (LGA)	0 - 7.5m	>7.5 m	Total	Perth (%)
Armadale	1,523	104	1,627	3.1%
Bassendean	477	22	499	1.0%
Bayswater	1,001	103	1,104	2.1%
Belmont	688	70	758	1.4%
Cambridge	814	210	1,024	1.9%
Canning	1,736	179	1,915	3.6%
Claremont	322	120	442	0.8%
Cockburn	3,604	430	4,034	7.7%
Cottesloe	275	148	423	0.8%
East Fremantle	348	115	463	0.9%
Fremantle	1,099	352	1,451	2.8%
Gosnells	2,003	138	2,141	4.1%
Joondalup	5,355	647	6,002	11.4%
Kalamunda	1,558	118	1,676	3.2%
Kwinana	964	53	1,017	1.9%
Melville	2,943	696	3,639	6.9%
Mosman Park	388	165	553	1.0%
Mundaring	1,206	84	1,290	2.5%
Nedlands	829	313	1,142	2.2%
Peppermint Grove	182	98	280	0.5%
Perth	269	84	353	0.7%
Rockingham	5,101	328	5,429	10.3%
Serpentine-Jarrahdale	1,048	76	1,124	2.1%
South Perth	896	189	1,085	2.1%
Stirling	3,886	549	4,435	8.4%
Subiaco	344	96	440	0.8%
Swan	2,916	164	3,080	5.8%
Victoria Park	388	52	440	0.8%
Vincent	341	59	400	0.8%
Wanneroo	4,135	314	4,449	8.4%
<b>METRO</b>	<b>46,639</b>	<b>6,076</b>	<b>52,715</b>	<b>100.0%</b>

**Table 1. Registered Recreational Vessels by Local Government at December 2018**

Table 1 shows the number of registered recreational vessels in each metropolitan Local Government area at December 2018. Vessel locations are derived from the post code of the registered owner as extracted from the Department of Transport database of registered recreational vessels. From the table, Joondalup and Rockingham have the highest recreational vessel ownership (%) while Perth and Peppermint Grove record the lowest percentage of registered vessels in the Perth Metropolitan Area.

At the end of 2018, there were 52,715 registered recreational vessels in the Perth Metropolitan area with about 88.5% in the range 0 to 7.5m and 11.5% in the range above 7.5m. This compares with 50,533 vessels recorded in 2008, of which 89.2% were less than 7.5 metres in length and 10.8% were greater than 7.5m.

### **4.3 Perth Metropolitan Area – Sector Analysis**

The Study divided the Perth Metropolitan area into three marine planning sectors; northern, central and southern. The northern sector encompassed the waters adjacent to Hillarys and north to Two Rocks; the central sector covered ocean shore waters from City Beach to Woodman Point as well as Gage Roads and the Swan and Canning Rivers; with the southern sector taking in Cockburn Sound and the waters adjacent to Kwinana and Rockingham.

Surveys of boat ramp usage by the Department of Transport have found that the majority of public boating facility users tend to use boat launching facilities that are in close proximity to their residences. Similarly, examinations of marinas along Perth's coast have found a tendency for boat pens holders to reside within the vicinity of the marina that houses their vessel. It is reasonable therefore to generalise that boat owners will prefer to utilise local boating facilities when available and where the local waters are attractive to boating.

The population corresponding to each of the three sectors was considered as being made up of the following combination of Local Governments areas.

<b>Sector</b>	<b>Local Government</b>	<b>Combined Population 2008</b>	<b>Combined Population 2018</b>
Northern	Joondalup, Stirling, Swan, Mundaring, Wanneroo	630,041	777,576
Central	Bassendean, Bayswater, Belmont, Cambridge, Canning, Claremont, Cockburn (50%), Cottesloe, East Fremantle, Fremantle, Gosnells,	738,615	845,191

	Kalamunda, Melville, Mosman Park, Nedlands, Peppermint Grove, Perth, South Perth, Subiaco, Victoria Park, Vincent.		
Southern	Armadale, Cockburn (50%), Kwinana, Rockingham, Serpentine-Jarrahdale.	236,475	358,121
	<b>TOTAL</b>	<b>1,605,131</b>	<b>1,980,888</b>

**Table 2 Three Sector Population Summary 2008 and 2018**

The incidence of boat ownership in each sector (and Local Government area, refer Table1) varies considerably. For the purposes of forecasting growth in the Perth fleet it is useful to consider where growth has occurred in the past.

Changes in Metropolitan Boat Ownership by Sector (2008-2018)									
Sector	2008			2018			(% Change)		
	0 - 7.5m	>7.5m	Total	0 - 7.5m	>7.5m	Total	0 - 7.5m	>7.5m	Total
Northern	16,613	1,523	18,136	17,498	1,758	19,256	5.3%	15.4%	6.2%
Central	19,413	3,349	22,762	18,702	3,545	22,247	-3.7%	5.9%	-2.3%
Southern	9,074	561	9,635	10,438	774	11,212	15.0%	38.0%	16.4%
<b>TOTAL</b>			<b>50,533</b>			<b>52,715</b>			

**Table 3. Three Sector Metropolitan Boat Ownership Summary 2008 and 2018**

Table 3 summarises the distribution of recreational vessels across the metropolitan area by sector (North, Central and South) and by changes in growth since 2008. The Central metropolitan sector remains the largest by vessel number but has experienced negative overall growth (-2.3%). By comparison, the Southern sector has the experienced the highest overall growth rate (16.4%) but the least number of vessels. The Northern sector has experienced 6.2% overall growth and is close to the greater number of vessels. These results are considered to reflect the following:

- A possible level of maturity in recreational boating facility development across the central sector, where space to expand, store and moor vessels is restricted.
- A period of more subdued growth due to changes in the economic circumstance of the State since the 2008 Study.

- The rapid residential development along the coast to the north and south of Perth resulting in growing boat registrations in those areas.

Due to the challenges in planning and providing new boating facilities along the Swan and Canning Rivers, and the increasing likelihood of the Central sector – as a standalone sector - being unlikely to sustain significant public boating facility growth over the planning period, the Review will concentrate on a split of only two new sectors – North and South.

The Northern sector will include the Local Governments areas that are generally north of the Swan River while the Southern sector will include Local Governments areas that are generally south of the Swan River. Planning for future new recreational boating facilities will therefore be focused on the coast, in two sectors: north and south of the entrance to the Swan River.

For planning purposes, the Northern and Southern sectors (refer Map 1) will comprise the population recorded for the Local Government areas as follows:

<b>Sector</b>	<b>Local Government</b>	<b>Combined Population 2008</b>	<b>Combined Population 2018</b>
Northern	Bassendean, Bayswater, Cambridge, Claremont, Cottesloe, Joondalup, Mosman Park, Mundaring, Nedlands, Peppermint Grove, Perth, Stirling, Subiaco, Swan, Vincent, Wanneroo.	845,069 (52.6%)	1,025,502 (51.8%)
Southern	Armadale, Belmont, Canning, Cockburn, East Fremantle, Fremantle, Gosnells, Kalamunda, Kwinana, Melville, Rockingham, Serpentine-Jarrahdale, South Perth, Victoria Park.	760,062 (47.4%)	955,386 (48.2%)
	<b>TOTAL</b>	<b>1,605,131</b>	<b>1,980,888</b>

**Table 4. Two Sector Population Summary 2008 and 2018**

A revised split of boat ownership follows.

Boat Ownership 2008 and 2018										
Sector	2008			2018			(% Change)			
	0 - 7.5m	>7.5m	Total	0 - 7.5m	>7.5m	Total	0 - 7.5m	>7.5m	Total	
Northern	21,962	2,838	24,800	22,740	3,177	25,917	3.5%	11.9%	4.5%	
Southern	23,138	2,595	25,733	23,898	2,900	26,798	3.3%	11.8%	4.1%	
<b>TOTAL</b>			<b>50,533</b>			<b>52,715</b>				

**Table 5. Two Sector Metropolitan Boat Ownership Summary 2008 and 2018**

From the Tables 4 and 5 it is observed that for the period 2008 to 2018 that in:

- the Northern Sector, population has increased by 21.4% and the total number of registered vessels has increased by 4.5%.
- the Southern Sector, population has increased by 25.7% and the total number of registered vessels has increased by 4.1%.
- the Northern and Southern sectors, the growth in both classes of vessels is similar.

#### 4.4 Vessel Registrations – Actual vs Forecast

Year	Vessels Less than 7.5m			Year	Vessels Greater than 7.5m		
	Actual (A)	Forecast (F)	Difference F-A		Actual (A)	Forecast (F)	Difference F-A
2008	45,100	44,099	-1,001	2008	5,433	5,162	-271
2012	46,468	49,921	+3,453	2012	6,174	6,035	-139
2018	46,639	60,266	+13,627	2018	6,076	7,493	+1,417

**Table 6. Actual Vessel Registrations vs 2008 Forecasts**

Table 6 shows a comparison of the actual vessel registrations against the 2008 Study forecasts. The 2008 Study forecasts were established after considering high, low and “medium” growth scenarios. The medium growth scenario was selected as it was considered to represent the most appropriate model at that time.

The difference between actual and forecast number of vessels under 7.5 metre ranged from -2.2% in 2008 (-1,001 vessels) to +29% in 2018 (+13,627 vessels).

The difference between actual and forecast numbers of vessels over 7.5 metres ranged from an under estimate of -4.9% (271 vessels) in 2008 to an over estimate of +23.3% (1,147 vessels) in 2018.

## **Summary**

In total, the difference between actual and forecast recreational vessel registrations amounts to an over-estimate of about 28% for total vessels in the metropolitan area over the period 2008 to 2018 or approximately 15,000 vessels.

A difference between actual and predicted vessel registrations is to be expected. However, the emergence of the increasing drift between predicted and actual values over time suggests the presence of unexpected volatility in the data sets and highlights the need for regular re-forecasting.

The Study results were based on data-sets that reflected the prevailing circumstances at that time. Vessel registrations were increasing at a faster rate than their historical mean, the Western Australian economy was enjoying buoyant financial conditions and population growth rates were rising.

Since the Study was released a number of reported factors may have combined to have a compound influence on growth in vessel registrations. The factors likely included the 2008 global financial crisis and the associated equity market downturn; the end of the WA mining construction boom (in about 2013) and the subsequent economic downturn; and, the changing labour market in WA.

Together these changes in ‘economic activity’ have been significant enough to overcome the historical association between population and vessel registration growth.

Periodic review, at intervals of no more than 3 years, is now considered an essential part of marine facility planning.

## **Survey Exempt Vessels**

An unexpected change in maritime legislation applicable to Western Australia had a one-off impact on the recreational vessel registration database. After 1 July 2013, approximately 664 commercial vessels that were previously survey exempt and held a recreational registration lost their exemption and were required to be registered as commercial vessels only. Though a relatively small change, it is an example of how a change in ‘the regulatory environment’ can impact on the registered vessel population.

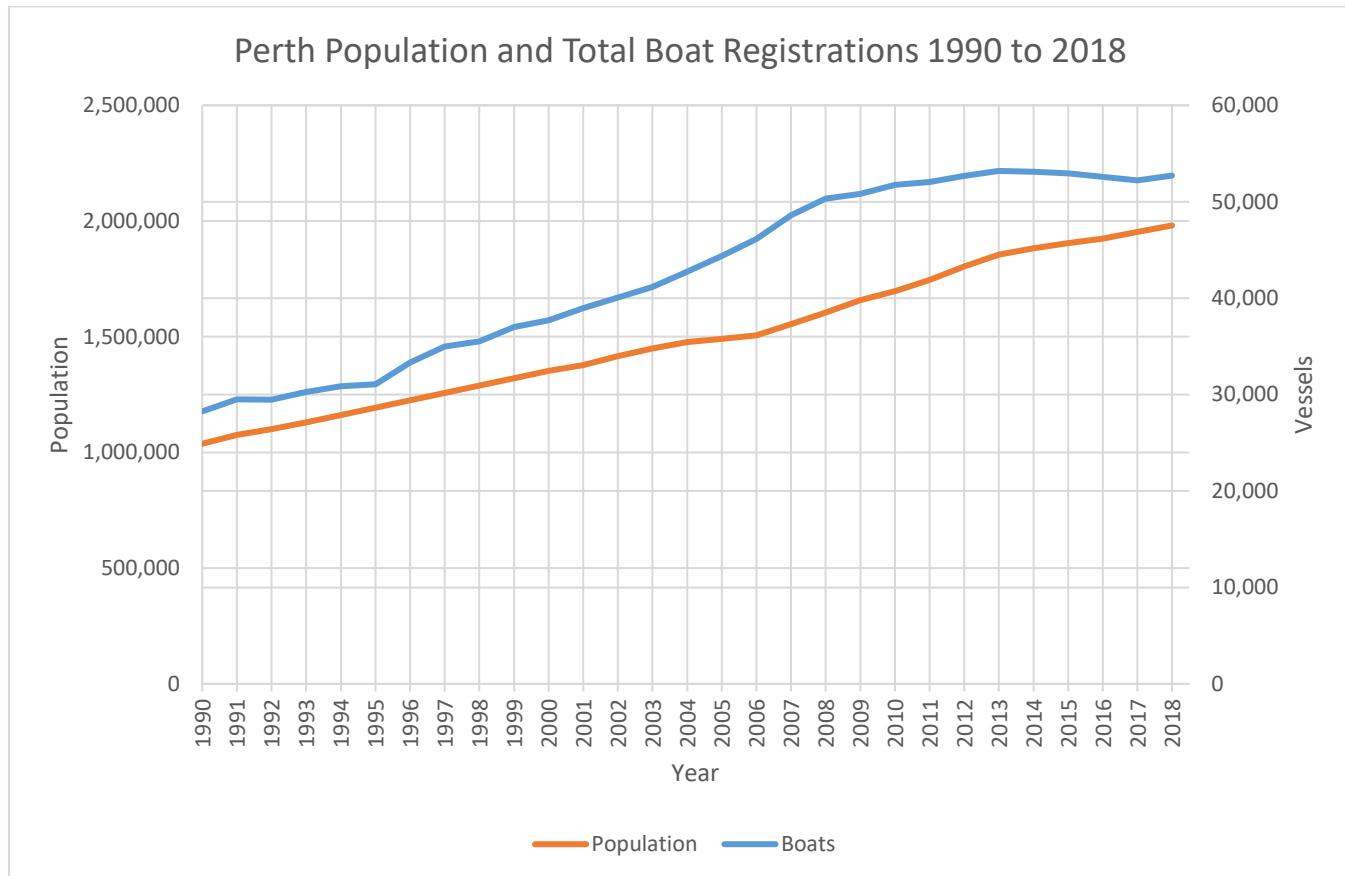
## 4.5 Boat Registrations and Population 2008 to 2018

Recreational Vessels & Population 2008 to 2018							
Year	Vessel Length (0-7.5) m	Vessel Length (>7.5) m	Total	Perth Population	Boat Density		
					Total <7.5m Boats/1000 of Population	Total >7.5m Boats/1000 of Population	Total Boats/1000 of Population
1990	25,845	2,417	28,262	1,037,700	24.9	2.3	27.2
1995	28,244	2,809	31,053	1,193,319	23.7	2.3	26.0
2000	34,188	3,506	37,694	1,352,172	25.3	2.6	27.9
2005	40,110	4,259	44,369	1,491,200	26.9	2.9	29.8
2008	45,100	5,433	50,533	1,605,000	28.1	3.4	31.5
2009	45,263	5,565	50,828	1,658,000	27.3	3.4	30.7
2010	45,997	5,759	51,756	1,697,000	27.1	3.4	30.5
2011	46,032	6,018	52,050	1,746,000	26.4	3.4	29.8
2012	46,501	6,166	52,667	1,803,000	25.8	3.4	29.2
2013	46,909	6,286	53,195	1,854,000	25.3	3.4	28.7
2014	46,940	6,187	53,127	1,882,000	24.9	3.3	28.2
2015	46,711	6,218	52,929	1,904,000	24.5	3.3	27.8
2016	46,446	6,131	52,577	1,924,060	24.1	3.2	27.3
2017	46,171	6,058	52,229	1,952,478	23.6	3.1	26.7
2018	46,639	6,076	52,715	1,980,888	23.5	3.1	26.6

**Table 7. Boat Registration and Population Summary 2008 to 2018**

Table 7 shows Department of Transport recreational boat registration data broken down into vessel categories against population figures for the Perth Metropolitan area 2008 to 2018. Data for the years 1990, 1995, 2000 and 2005 is also added for context. The table shows the number of registered vessels in the Perth Metropolitan area for both size categories, estimated population and boat density (boats/1000 population).

From 2008 to 2018, registrations for vessels < 7.5 metres have experienced a net increase of 1,539 (or 3.4%) and for the > 7.5 metre category a net increase of 643 (or 11.8)%.



**Figure 1. Boat Registrations and Population Growth 1990 to 2018**

Figure 1 illustrates population and total vessel registrations over the period 1990 to 2018. The mining construction ‘growth bubble’ in vessel registrations can be observed beginning in about 2003 with a noticeable return to ‘pre-boom’ levels in recent years. It is possible that boat registrations have ‘levelled-out’ with a return to positive growth, albeit quite modest, in 2018. In comparison population growth has remained relatively consistent.

Over the period 1990 to 2018, the net increase in vessels was 86.5% (an average of 2.25%pa) while population is estimated to have increased by 90.9% (an average of 2.34%pa).

Although not exact, a strong relationship is still considered to exist between population growth and the number of registered recreational vessels. This relationship, or trend, is reliant on factors previously discussed as well as the availability of suitable vessel storage options (including parking for trailered boats, boat pens, boat stacker bays, etc) not being constrained.

## 4.6 Updated Vessel Growth Forecasts

### 4.6.1 Background

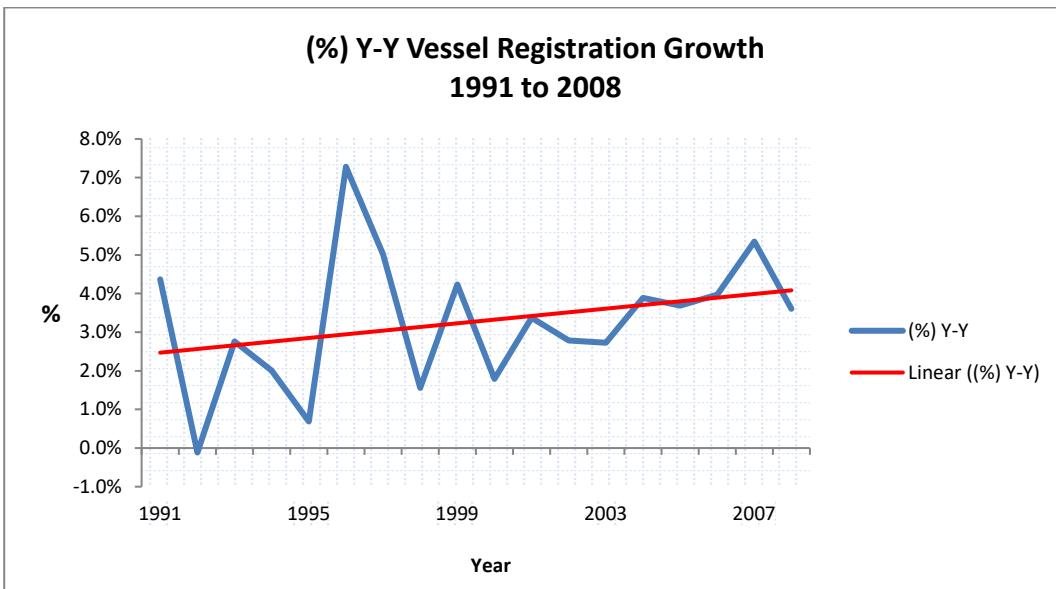


Figure 2. Year on Year Vessel Registration Growth (%) 1991-2008

At the time that the Study was being researched and written, the vessel growth trend was positive as shown in Figure 2, but in 2008, the ‘year-on-year’ (Y-Y) vessel registration dipped below trend growth. This single data point would have appeared at the time to be “normal” volatility in the dataset. However, the continuous addition of below trend data over time eventually changed the polarity of the trend itself as shown in Figure 3 (below).

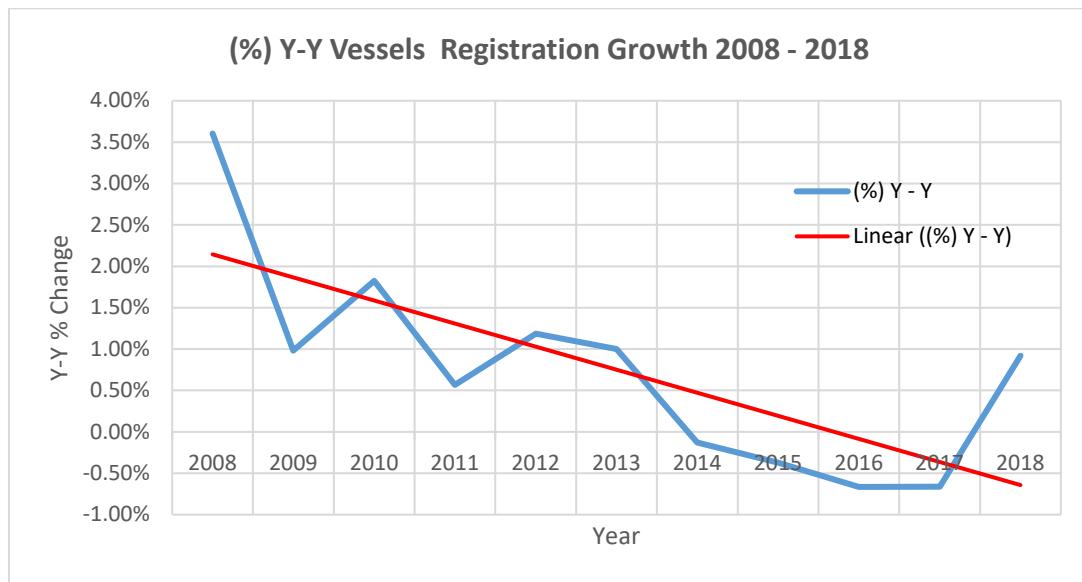


Figure 3. Year on Year Vessel Registration Growth (%) 2008-2018

The downwards trajectory in Y-Y growth rates ends with the most recent observations showing a stabilising and finally an upward trend in 2018. A falling Y-Y growth rate in registrations over

the recent short term is not necessarily alarming with respect to the forecasts being made for vessel numbers over the longer term. With the recent return to positive growth it is considered likely that this may be the start of a reversal in the trend from the last 10 years.

It is considered prudent for planning purposes to look to the future on the basis of average growth rates. Such growth rates should minimise the extremes of the ‘boom years’ and permit planning activities to account for modest levels of growth.

#### 4.6.2 Forecasting Methodology

The Study examined three possible scenarios for vessel registrations: accelerated high growth; continued steady growth and a reduced growth scenario derived from historic vessel data with a 2025 planning horizon. To forecast future vessel registration growth, the high and low growth scenarios were rejected in favour of the “steady” growth projection.

In general, the Review carries on the research conducted for the Study. The two vessel length categories are retained.

The Review departs from the Study by examining the Perth Metropolitan area initially as three sectors - Northern, Central and Southern – but changes to a two-sector strategy (Northern and Southern). The planning horizon is pushed out to 2036, a period of 18 years from 2018, whereas the 2008 Study used a planning horizon of 2025, a period of 17 years.

The method of forecasting vessel numbers in this Review has been to determine the average rate of boat ownership for each class of vessel for the years 2008 to 2018 and apply these to population predictions for the period 2019 to 2036.

Trends show that vessels less than 7.5m make up about 88.5% of the Perth fleet, while vessels greater than 7.5m make up about 11.5%.

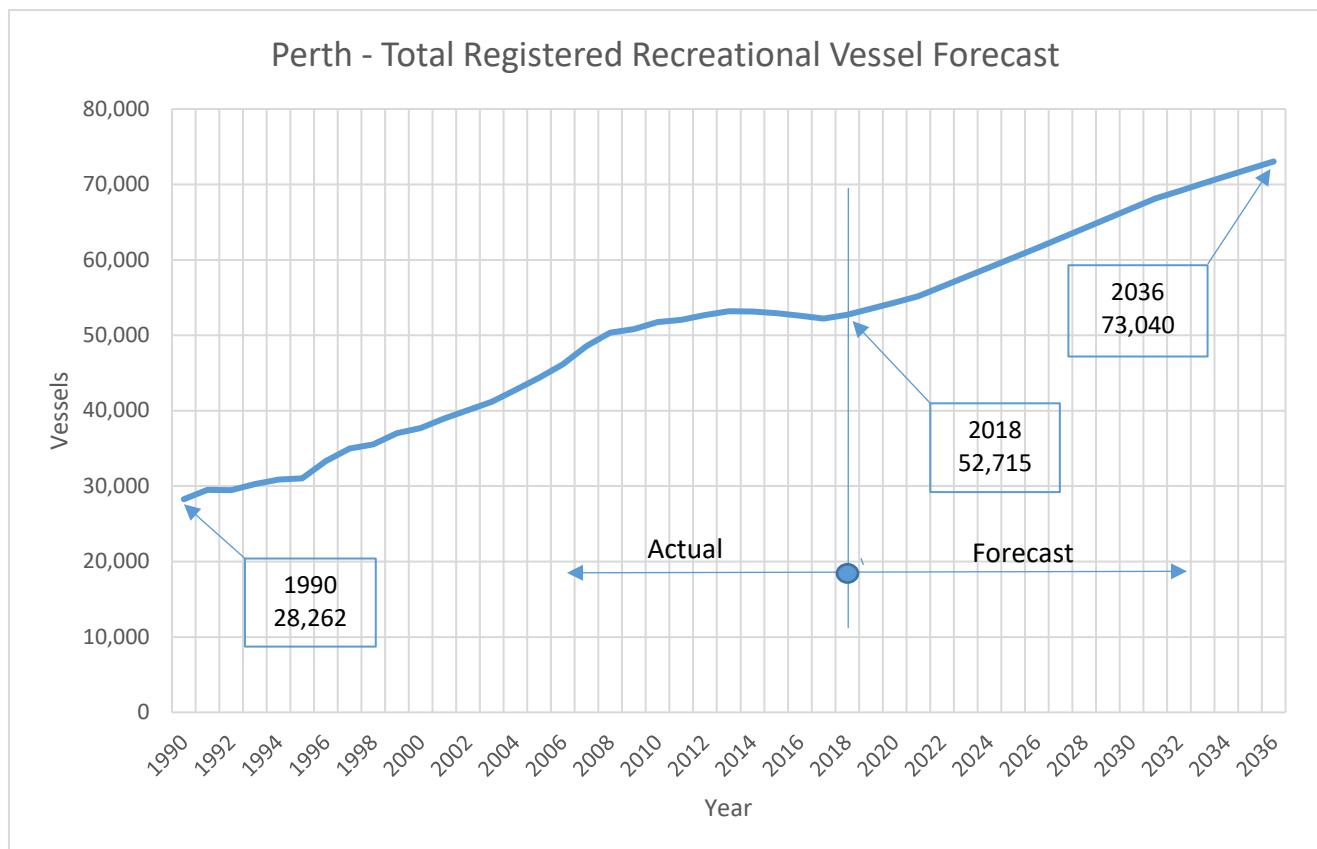
Trends for vessels registered in the Northern or Southern sectors have been maintained.

Comparisons were made with other methods of forecasting such as averaging the rates of boat ownership over the much longer – and possibly less relevant - period of 1990 to 2018. However, this method resulted in very similar results with the overall fleet estimate by 2036 varying by less than 1%.

Population predictions were obtained from the ‘Population Report No.11 - Band C’, Department of Planning, Lands and Heritage (2019).

The Review’s forecast of growth in the Perth fleet is therefore the result of a relationship between Perth’s population predictions and the Department of Transport historic database of vessel registrations.

#### 4.6.3 Vessel Registration Predictions



**Figure 4. Vessel Registration Forecast 2018-2036**

Figure 4 plots historic (actual) and forecast vessel registration data. The forecast component of the figure – 2018 to 2036 – is delineated at either end by text boxes containing total vessel numbers.

A consistent rising trend in the historical data (1990-2008) can be observed, reaching a point of change in 2008. Past this date to 2017, lower growth becomes noticeable.

The forecast for the period from 2018 to 2036 predicts a return to historical rates of average growth. Boat registrations in 2018 have shown a return to positive growth, possibly ending the downward trend that has persisted since 2013. However, the return to average growth rates is dependent on the modelling assumptions holding – continued trend growth underpinned by rising population combined with an absence of extreme volatility in the economy and the availability of boating facilities to meet the demand.

#### 4.6.4 Vessel Forecast by Vessel Size Category

Table 8. (below) sets out the revised forecast for recreational vessel growth in the metropolitan area. The forecast estimates an increase in total vessels from 52,715 in 2018 to 73,040 by 2036.

The Review divides registered recreational vessels into two categories based on length. This split permits separate forecasting and facility planning for vessels <7.5m that are typically stored on a trailer and those that are >7.5m and typically require 'moorings'.

Perth Recreational Fleet		Actual	Forecast	
Year		2018	2026	2036
Vessels Less than 7.5m		46,639	54,460	64,640
Vessels Greater than 7.5m		6,076	7,083	8,400
Total		52,715	61,543	73,040

**Table 8. Forecast of Registered Vessels for Two Categories**

For vessels less than 7.5m - the ‘trailer boat’ category - the number of registered vessels is forecast to increase generally in line with population growth, from 23.54 vessels per thousand population in 2018 to 25.51 vessels per thousand population by 2036.

For vessels in the category greater than 7.5m, the number of registered vessels is forecast to increase generally in line with population growth, from 3.06 vessels per thousand population in 2018 to 3.30 vessels per thousand population by 2036.

#### 4.6.5 Vessel Registration Forecast – Two Sectors

Year	Actual			Forecast					
	2018			2026			2036		
Sector	<7.5m	>7.5m	Total	<7.5m	>7.5m	Total	<7.5m	>7.5m	Total
Northern	22,740	3,177	25,917	26,141	3,683	29,824	31,028	4,368	35,396
Southern	23,898	2,900	26,798	28,319	3,400	31,719	33,612	4,032	37,644

**Table 9. Two-Sector Forecast Summary**

Table 9 shows the revised growth forecast in the total number of vessels out to 2036 as per the two-sector approach. Total vessel numbers have been determined from rates of boat ownership and population predictions. The splits between vessels less than 7.5m and vessels greater than 7.5m have been estimated from trends for each class of vessel in each sector.

# 5.Boating Facility Development

Recreational boating is a popular activity in Perth. Historically, formal recreational boating facilities have been provided along the shores of the naturally sheltered waters of the Swan and Canning Rivers and in the semi-sheltered coastal waters of Cockburn Sound. Over the years, expansion of the Perth fleet of recreational vessels has led to the capacity of the Rivers to provide boating facilities to be tested. This has led (in part) to the need for artificially-sheltered boating facilities to be provided along the ocean shores of the Metropolitan area.

This is demonstrated by the development of coastal boating facilities such as the Two Rocks Marina (1973), Success Harbour (Fremantle Sailing Club, 1979), the Woodman Point Boat Launching Facility (1983), Challenger Harbour (1985) and the Hillarys Boat Harbour (1986). With its origins in the 1940's, the Fremantle Fishing Boat Harbour has progressively developed to its current configuration and now also provides boat pens and boat stacker bays for recreational boats.

The need to plan and provide additional and improved recreational boating facilities has not diminished. This is evidenced by the general trend of the Perth fleet of registered recreational vessels expanding from 28,262 in 1990 to 52,715 in 2018.

There are various principles and factors that guide the selection and development of a site for a recreational boating facility. However, an overriding principle has been that where possible existing boating facilities should be developed to their potential in preference to new facilities being developed in the vicinity.

The recommendations of the Review are therefore focused on existing facilities being redeveloped or expanded. However, some recommendations recognise that there is a need to also provide facilities at new sites. The availability of suitable sites along the coast remains a challenge for facility providers and regulators when planning for growth.

Section 4 analysed the number of registered recreational vessels in the Perth fleet from 2008 to 2018 and compares these with the Study forecasts. The following section will analyse the actual boating facility developments from 2008 to 2018, compare them with the Study recommendations, and re-forecast the boating development options that are required to meet the updated forecasts of the number of registered recreational vessels by 2036.

## 5.1 Boating Facility Development 2008 to 2018

The Table below shows the Study recommendations for recreational boating facility development for the period 2008 to 2018 and compares them with the actual development over that time frame. An analysis of the full Study recommendations to 2025 can be found at Appendix A.

Based on observations, about 50% of boats stored in boat stacker bays are considered to be over 7.5m and therefore for planning purposes are counted as moorings.

<b>Assessment of Study Recommendations 2008 to 2018</b>		
<b>Short Term Initiatives (to 2012)</b>		
	<b>Study Recommendations</b>	<b>Actual Development To-Date</b>
<i>Government funded facilities:</i>		
Expand the numbers of boat pens in the Hillarys Boat Harbour.	21 pens	33 additional moorings installed
Expand the facilities within the Woodman Point (Jervoise Bay) Recreational Boating Precinct, including construction of further ramps and a boat stacking facility.	4 lanes & 300 bay boat stacker	4 lanes added.
Expand the number of boat pens and support the establishment of dry facilities storage (boat stackers) within the Fremantle Fishing Boat Harbour.	242 pens	52 additional pens constructed. 278 moorings added (50% of the 556 boat stacker bays)
Develop a coastal public boat launching facility in the Fremantle area (Stage 1).	4 lanes	No Action
Upgrade the boat ramp at the Two Rocks Boat Harbour.	2 lanes	No additional lanes, but facilities significantly improved for traffic, parking and jetties.
<i>Privately funded facilities: (based on known proposals)</i>		
Expand the number of boat pens within the Mindarie Marina.	256	200 new moorings installed
Develop private marina pens and residential berths at Port Coogee. (Part 1)	150	150 marina pens constructed.
Develop the Eglinton Marina including ramps and pens.	200 pens + 2 lanes	No Action
Develop the Port Kennedy public boat ramps.	2 lanes	2 Lane boat launching facility (constructed in 2010)

Expand the number of boat pens within the Ascot Waters Marina	62	73 new pens (constructed in 2010)
Expand and or re-organise the pen capacity of yacht clubs (Part 1)	235 in the short term	Refer Medium Term Initiatives
<b>Medium Term Initiatives (to 2018)</b>		
	Study Recommendations	Actual Development To-Date
<i>Government funded facilities:</i>		
Develop a marina in Mangles Bay.	500 pens	No Action
Develop a coastal public boat launching facility in the Fremantle area (Stage 2).	4 lanes	No Action
Develop a new public harbour near Alkimos on the north Metropolitan coast (Stage 1).	4 lanes+200 pens	No Action
<i>Privately funded facilities</i>		
Expand and or re-organise the pen capacity of Yacht Clubs. (Part 2)	82 pens	174 pens added
Develop private marina pens and residential berths at Port Coogee (Part 2)	150 pens	In-planning
Expand the number of pens within the Fremantle Sailing Club.	500 pens	No action
	<b>Study Forecast:</b> <b>20 ramp lanes</b> <b>2748 moorings</b>	<b>Actual:</b> <b>6 ramp lanes</b> <b>960 moorings</b>
<b>TOTAL 2008 to 2018:</b>		

**Table 10. Assessment of Study Recommendations 2008 to 2018**

Table 10 shows that a total of 20 boat ramp lanes were forecast as being required by the Study between 2008 and 2018, but that only 6 boat ramp lanes were provided. Similarly, 2748 moorings (boat pens, swing moorings and boat stacker bays) were forecast as being required but that only 960 were provided. This is a considerable difference and would have likely

caused significant congestion and dissatisfaction at the under-supply of new boating facilities had the number of registered vessels reached the levels predicted in the Study.

However, the actual number of registered recreational vessels at 2018 was 52,715 which was much less than the 67,759 vessels forecast in the Study for 2018. This is likely to explain why the level of usage of boating facilities did not reach alarming levels over this period.

Using a similar methodology as the Study, the boating facility requirements for Perth from 2008 to 2018 have been hindcast using actual boat registrations at 2008 and December 2018. The results are shown in the Table below.

<b>Hindcast of Boating Facility Development Required</b>				
	2008 (actual)	2018 (actual)	Actual Development Provided	Hindcast of Development Required
<i>Vessels 0 to 7.5m</i>	44,924	46,639	6 ramp lanes	2 ramp lanes
<i>Vessels Greater than 7.5m</i>	5,410	6,076	960 moorings	666 moorings
<i>Totals</i>	50,334	52,715		

**Table 11. Hindcast of Boating Facility Development Requirements for 2008 to 2018**

From Table 11 above it is observed that the boating facilities provided over the period 2008 to 2018 actually exceeded the demand for new boating facilities by 2018. This outcome highlights the need to closely monitor the growth of the boating fleet and periodically adjust the schedule of boating facility development options to suit the actual data. It also indicates to maritime planners that growth predictions should justifiably be based on medium to longer-term estimates of growth.

Due to the ‘oversupply’ of public recreational boating facilities, as shown in Table 11, and an apparent under-utilisation of some existing boating facilities, it is considered that 2018 can now be taken as the base year on which future development is planned. The capacity that is available in existing facilities should allow for the construction time that is required to deliver new boating facilities. Therefore, for planning purposes, for increases in the number of registered recreational vessels beyond 2018, additional boating facilities should be planned.

## 5.2 Boating Facility Development 2018 to 2036

Section 4 of this Review determines that, based on estimates of growth, the Perth recreational fleet will increase from 52,715 boats in 2018 to 73,040 vessels in 2036.

The areas of Perth where growth in vessel ownership is considered most likely to occur are in the outer areas, and in particular in the north and south of Perth where population is predicted to grow considerably (ref: Perth Population Report 11, Dept Planning, Lands, Heritage (2019)).

By contrast the central suburbs of Perth appear to have reached a near saturation point especially for vessels stored on trailers.

It is considered unlikely that new public recreational boating infrastructure can be planned with confidence along the inland navigable waterways (Swan and Canning Rivers) of central Perth. The challenges facing new boating facility development here appears not to have altered since the 2008 Study. However, this is not to say that upgrades to existing facilities cannot be planned and undertaken. Indeed, this activity is encouraged.

Since the 2008 Study, the Recreational Boating Facilities (Funding) Scheme, which is administered by the DoT, has provided about \$5.9 million in funding towards upgrades and planning studies for existing facilities located in the Study Area. Unfortunately, over that period no new sites for public facilities have been put forward.

By 2036, the Review has forecast the Perth fleet to grow such that it can be broken down to 64,640 vessels up to 7.5m in length, and 8,400 vessels greater than 7.5m. Typically, vessels of length up to 7.5m are considered as being stored on trailers and to require boat ramps to launch and retrieve.

Vessels of length greater than 7.5m have been considered by the Study to require moorings (boat pens or swing moorings). Whilst this is still considered to be representative, it is acknowledged that in recent years there has been an increasing incidence of vessels being stored in boat stackers.

The benefits of boat stacking are typically a lower storage cost than a wet pen and a significantly reduced vessel maintenance cost, particularly with regards to regular anti-fouling. Combined with high-end club facilities, provisioning on-site and pre-order/ready-on-water request service, boat stacking is increasingly a popular and cost-effective alternative to pens for vessels registered in the 6m to 8.5m+ range. Incorporating boat stacking within a modern marina is now considered a sensible and efficient way to deliver boat storage.

The current view of the Department of Transport is that where possible modern marina layouts should reduce the number of very small boat pens (pens less than 10m) in the water where efficient onshore storage alternatives, such as boat stackers, can be accommodated. For the purposes of the Review, 50% of the vessels stored in boat stackers in marina settings are counted as moorings, due to the stacker offering an alternative to wet pens.

This Review utilises a revised baseline year of 2018 but extends the planning horizon to 2036 – a period of 18 years.

### 5.2.1 Boat Ramps

To calculate demand for boating infrastructure (ramp lanes) for vessels up to 7.5m, the additional number of trailer boats expected to be on the water during a “busy boating day”, are converted into a number of ramp lanes required to service the calculated number of vessels in use. The Study used an estimate of an equivalent of 5% of total registered vessels less than 7.5m being in use on a busy day (as does the Review) and the number of ramp lanes required is 50 trailer

parking bays for each ramp lane (per AS3962, 2001 Guidelines for Design of Marinas). Put simply, for every extra 1000 boats in the 0 to 7.5m category, one additional ramp lane is required.

Future Demand for Ramp Lanes for Vessels up to 7.5m						
Year	Northern		Southern		Metropolitan (total north and south)	
	Extra Vessels	Ramp Lanes Required	Extra Vessels	Ramp Lanes required	Extra Vessels	Ramp Lanes Required
2018 to 2026	3,401	3.5	4,421	4.5	7,822	8
2018 to 2036	8,288	8	9,714	10	18,004	18

**Table 12. Forecast Public Ramp Lane Demand for Vessels <7.5m**

Table 12 summarises the forward demand for boat ramp lanes in Perth. The number of extra lanes required in the northern and southern sectors are identified. These now become the infrastructure targets – for ramp lanes - when considering the Development Options for this Review.

### 5.2.2 Boat Moorings

To calculate demand for boating infrastructure (moorings) for vessels greater than 7.5m, the additional number of vessels above 7.5m are each expected to require a mooring. A mooring for the purposes of this Review can be either a boat pen, a swing mooring or a bay in a boat stacker (see qualifying notes at 5.2 above). Moorings provided at private residential jetties and storage on the hardstand at private facilities are not included because it is considered that there is limited opportunity for these to have a significant impact on infrastructure targets.

The Table below summarises the number of moorings required to meet the demand.

Future Demand for Moorings for Vessels Greater than 7.5m						
Year	Northern		Southern		Metropolitan (total north and south)	
	Additional Vessels	Moorings Required	Additional Vessels	Moorings Required	Additional Vessels	Moorings Required
2018 to 2026	506	500	500	500	1,006	1,000
2018 to 2036	1191	1,200	1,132	1,150	2,323	2,350

**Table 13. Forecast Public Mooring Demand for Vessels >7.5m**

Table 13 now represents the infrastructure targets – for moorings - when considering the Development Options for this Review.

### 5.2.3 Boating Facility Development Options 2018 to 2036

The results from Tables 12 and 13 represent the infrastructure targets of development required to satisfy the future demand for public recreational boating infrastructure.

Below are tables of development options that could be provided to meet the demand. As discussed previously, most of the new developments are proposed along the coast and are understood to be currently under consideration.

At the time of writing there has been a noticeable change in the occupancy rates of some marinas along the Perth coast. Whereas during the ‘boom’ times almost all marinas were considered to be at or near capacity, currently the occupancy rate appears to have dropped to an average of about 85 to 90%. Whilst some marinas have occupancy rates that are lower than average, overall the rate is still considered to be quite high. The recent increase in pen vacancies is considered to be a likely consequence of the recent economical down-turn. It is expected to improve over time as the economy improves. Importantly, recreational boating facility planning should focus on medium to longer-term growth predictions, noting that implementation of development options should be adjusted to suit the market conditions at the time of decision making.

Known Development Options 2018 to 2036			
Option	Northern Sector	Additional Lanes	Additional Moorings
	Two Rocks Boat Harbour	2 (note 1)	100 (note 1)
	Eglinton Marina	2	150
	Mindarie Marina	-	-
	Ocean Reef Marina	4 (note 2)	600 (note 2)
	Hillarys Boat Harbour (DoT)	-	-
<b>Sub Total</b>		<b>8</b>	<b>850</b>
Southern Sector		Lanes	Moorings
	Fremantle BH Harbour	-	50
	Woodman Pt. Rec Boating Precinct	-	150 (note 3)
	Port Coogee	-	150
	Port Rockingham (Wanliss Street)	-	500
	Point Peron Boat Launching Harbour	2	-
<b>Sub Total</b>		<b>2</b>	<b>850</b>
<b>TOTAL</b>		<b>10</b>	<b>1,700</b>

Table 14. Known Development Options 2018 to 2036

Note 1. Two Rocks Boat Harbour –an additional 2 lanes and 100 pens are planned within the existing harbour footprint.

Note 2. Ocean Reef- although 8 ramp lanes are to be retained in the new marina layout, an equivalent of 4 extra ramp lanes are nominated due to the existing trailer parking capacity of 150 being doubled; 600 moorings equate to 500 additional pens plus 50% of 200 bay boat stacker.

Note 3: Woodman Point 150 moorings equates to 50% of 300 bay boat stacker.

#### 5.2.4 Comparing Boating Growth and Facility Development Options to 2036

The demand for public recreational boating facilities are taken from Tables 12 and 13, and can be compared with the known development options from Table 14.

Infrastructure Development Options to 2036 and the Gap		
	Vessels <7.5m	Vessels >7.5m
Demand (the Target)	18 ramp lanes	2,350 moorings
Known Development Options	10 ramp lanes	1,700 moorings
<b>Gap</b>	<b>8 ramp lanes</b>	<b>650 moorings</b>

**Table 15. Infrastructure Development Options to 2036 and the Gap**

Table 15 summarises the Gap between the demand for boating facilities in Perth and the boating facility development options that are known to be under consideration. An infrastructure deficit, of 8 boat ramp lanes and 650 moorings across the metropolitan area represents the Gap in facilities required to meet the targets established for 2036.

#### 5.2.5 Possible Development Options to Meet the Gap

From the section above the Infrastructure development gap for Perth has been determined. For planning purposes, the gap can be broken down to the Northern and Southern sectors.

##### Northern Sector

From Tables 12 and 13 the infrastructure development targets for the Northern Sector for the period 2018 to 2036 are 8 boat ramp lanes and 1200 moorings. Known Development Options (Table 16) establishes that 8 ramp lanes and 850 moorings are already in planning. The targets for additional development to meet the future demand are therefore:

350 moorings

<b>Northern Sector – Development Options to 2036 to Meet the Gap</b>		
Facility/ Location	Ramp Lanes	Moorings
Two Rocks Boat Harbour – An extn to the existing harbour footprint.	2 ramp lanes	350 moorings
<b>Total</b>	<b>2 ramp lanes</b>	<b>350 moorings</b>

**Table 16. Northern Sector - Development Options to 2036 to Meet the Gap**

The planning surplus for the Northern Sector is therefore - 2 boat ramp lanes.

### Southern Sector

From Tables 12 and 13 the infrastructure development targets for the Southern Sector for the period 2018 to 2036 are 10 boat ramp lanes and 1150 moorings. Known Development Options (Table 14) establish that 2 ramp lanes and 850 moorings are already in planning. The targets for additional development to meet the future demand are therefore:

8 ramp lanes and 300 moorings

<b>Southern Sector – Development Options to 2036 to Meet the Gap</b>		
Facility/ Location	Ramp Lanes	Moorings
Woodman Point Recreational Boating Precinct - Harbour Extension: An extension to the existing Boat Launching Harbour.	-	300 moorings
Southern Sector Boat Launching Facilities (at sites to be determined on the southern metro coast)	8	-
<b>Total</b>	<b>8 ramp lanes</b>	<b>300 moorings</b>

**Table 17. Southern Sector - Development Options to 2036 to Meet the Gap**

Subject to suitable and available sites in the southern sector being determined, there is no planning deficit for the Southern Sector.

### 5.2.6 Schedule of Development Options 2018 to 2036

The table below shows a summary of infrastructure development options that have been identified to meet the forecast demand for recreational boating facilities. Nominal timeframes for development are shown.

Development Options 2018 to 2036			
Nominal Time Frame	Development Option	Additional Lanes	Additional Moorings
<b>2018 to 2026</b>	<b>Northern Sector:</b>		
	Two Rocks Boat Harbour – Stage 1	2	100
	Ocean Reef Marina – Stage 1	4	300 (note 2)
	Hillarys Boat Harbour	-	- (note 3)
	Yacht Clubs (Coastal and Rivers)	-	- (note 3)
	Gazetted Mooring Areas	-	- (note 4)
<b>2026 to 2036</b>	<b>Northern Sector:</b>		
	Two Rocks Boat Harbour – Stage 2	-	350 (note 1)
	Eglinton Marina	2	150
	Mindarie Marina	-	- (note 3)
	Ocean Reef Marina – Stage 2	-	300 (note 2)
	Yacht Clubs (Coastal and Rivers)	-	- (note 3)
	Gazetted Mooring Areas	-	- (note 4)
<b>Sub Total</b>	<b>Northern Sector 2018 to 2036</b>	<b>8</b>	<b>1200</b>
<b>2018 to 2026</b>	<b>Southern Sector:</b>		
	Fremantle Fishing Boat Harbour	-	50
	Woodman Point Recreational Boating Precinct – Boat Stacker	-	150 (note 5)
	Port Coogee	-	150
	Point Peron Boat Launching Harbour	2	-
	Southern Sector Boat Launch Facilities	2 (note 7)	
	Port Rockingham – Stage 1	-	250
	Yacht Clubs (Coastal and Rivers)	-	- (note 3)
	Gazetted Mooring Areas		- (note 4)
<b>2026 to 2036</b>	<b>Southern Sector:</b>		
	Port Rockingham – Stage 2	-	250
	Woodman Point Recreational Boating Precinct - Harbour Extension	-	300 (note 6)
	Southern Sector Boat Launch Facilities	6 (note 7)	-
	Yacht Clubs (Coastal and Rivers)	-	- (note 3)
	Gazetted Mooring Areas		- (note 4)
<b>Sub Total</b>	<b>Southern Sector 2018 to 2036</b>	<b>10</b>	<b>1150</b>
<b>TOTAL</b>		<b>18</b>	<b>2350</b>

Table 18. Development Options 2018 to 2036

Note 1. Two Rocks Boat Harbour, Stage 2 - expanded harbour providing at least 350 moorings comprising 250 boat pens and 50% of 200 bay boat stacker. A new 6 lane ramp (net increase of 2 lanes) is also planned for the expanded harbour but is not included.

Note 2: Ocean Reef Marina - developed in 2 equal stages – each comprising 300 moorings which equates to 250 pens plus 50% of 100 bay boat stacker.

Note 3. Various Facilities – no allowance has been made, although some minor expansion is possible, and, as older pen systems are upgraded with new and efficient systems the numbers may increase.

Note 4. Gazetted Mooring Areas in Swan and Canning Rivers and at Mangles Bay – no allowance has been made to resident moorings, as an increase is currently not promoted.

Note 5. Woodman Point, 150 moorings equate to 50% of 300 bay boat stacker.

Note 6. New harbour cell added in the vicinity of the existing boat launching harbour.

Note 7. New boat launching facilities at sites to be determined in the southern sector.

Table 18 provides a schedule of infrastructure development options that may be pursued to meet the forecast demand for recreational boating facilities to 2036.

Some of the options – such as the Two Rocks Boat Harbour and Ocean Reef Marina – are at an advanced stage of planning in term of preliminary design and community consultation. Other options – such as the Woodman Point Recreational Boating Precinct Harbour Extension and the Southern Sector Boat Launching Facilities - are at the earliest stages of planning so must be considered as notional only at this stage.

## 6. Conclusions

The 2008 Perth Recreational Boating Facilities Study, predicted demand for recreational boating facilities to greatly exceed the supply of infrastructure in the Metropolitan area by 2025. The Review has determined that the level of public recreational boating facilities provided up to 2018, while much less than proposed in the Study, was fitting due to the number of actual registered recreational boats being much less than predicted.

The Review has a planning horizon of 2036. This time frame is considered appropriate as it approaches the extent of reliable population forecasts. The time frame of 18 years (2018 to 2036) is also consistent with the time frame of 17 years used in the Study (2008 to 2025).

The Review has predicted growth in the Perth recreational fleet that is consistent with average rates of boat ownership. Planning for new public facilities to serve recreational boating is focussed on sites along the ocean shores of Metropolitan Perth. New developments along the shores of the Swan and Canning Rivers, while welcome, have not been relied upon.

The Review retains most of the 2008 Study recommendations and notes that many have progressed. However, at mid-2019, developments of a coastal public boat launching facility in the Fremantle area, a marina in Mangles Bay and a boat harbour at Alkimos have not progressed and may need to be either discarded or revisited at some time in the future. In their place, new recommendations have been substituted and include a marina in the vicinity of Wanliss Street, Rockingham; a marina at the site of the existing Ocean Reef Boat Launching Harbour; a new boat mooring marina in the vicinity of the Woodman Point Boat Recreational Boating Precinct; boat launching facilities in the southern sector and a major expansion to the Two Rocks boat harbour.

Further planning and consultation will be required prior to committing to the recommendations (at Section 7) of the Review. Essential components to the planning processes should include re-assessment of the level of usage of public recreational boating facilities in the vicinity and re-assessment of the growth trends for registered recreational vessels and population at the time of decision making.

## 7. Recommendations

The following table provides a summary of recommendations for recreational boating facility development to meet the demand created by the predicted growth in the Perth fleet to 2036.

The recommendations are taken from the development options shown in Table 18. The recommendations are considered in more detail in the sections that follow.

Refer to Map 4 for location of the recommendations.

Rec.	Facility / Location	Facility Development	Indicative Timing
1	Ocean Reef Marina	500 boat pens (min) 4 additional boat ramp lanes 200 bay boat-stacker	Stage 1 - 2018 to 2026 Stage 2 – 2026 to 2036
2	Two Rocks Boat Harbour	350 additional boat pens (min) 2 additional boat ramp lanes. 200 bay boat-stacker	Stage 1 - 2018 to 2026 Stage 2 – 2026 to 2036
3.	Port Rockingham	New marina with 500 boat pens	Stage 1 - 2018 to 2026 Stage 2 – 2026 to 2036
4.	Point Peron Boat Launching Facility	2 additional boat ramp lanes	2018 to 2026
5.	Port Coogee	150 additional boat pens	2018 to 2026
6.	Woodman Point Recreational Boating Precinct – Boat Stacker	300 bay boat-stacker	2018 to 2026
7.	Fremantle Fishing Boat Harbour	50 additional boat pens	2018 to 2026
8.	Eglinton Marina	2 boat ramp lanes 150 boat pens	2026 to 2036
9.	Woodman Point Recreational Boating Precinct – Harbour Extension	300 boat pens	2026 to 2036
10.	Southern Sector Boat Launching Facilities	8 boat ramp lanes	2026 to 2036

**Table 19. Boating Facility Recommendations 2018 to 2036**

## 7.1 Ocean Reef Marina

- 7.1.1 Recommendation: construct 500 boat pens (min)
- 7.1.2 Recommendation: construct 4 additional boat ramp lanes
- 7.1.3 Recommendation: construct a 200-bay boat stacker



Refined Concept Plan c2018 (Landcorp)

In September 2017, the State Government committed to a new world-class marina in Perth's north. Funding has been set aside to plan and develop the facility at the site of the existing Ocean Reef boat launching facility. A construction commencement date of late 2020 has been advertised.

The marina will have the ability to accommodate up to 550 wet boat pens, a 200-bay boat stacker and a rebuilt 8 lane boat launching facility. Although the existing ramp has 8 ramp lanes it is only considered to be operating as a 4-lane facility due to the limited number of (150) trailer parking bays available. The new boat ramp will double the capacity of the existing boat ramp.

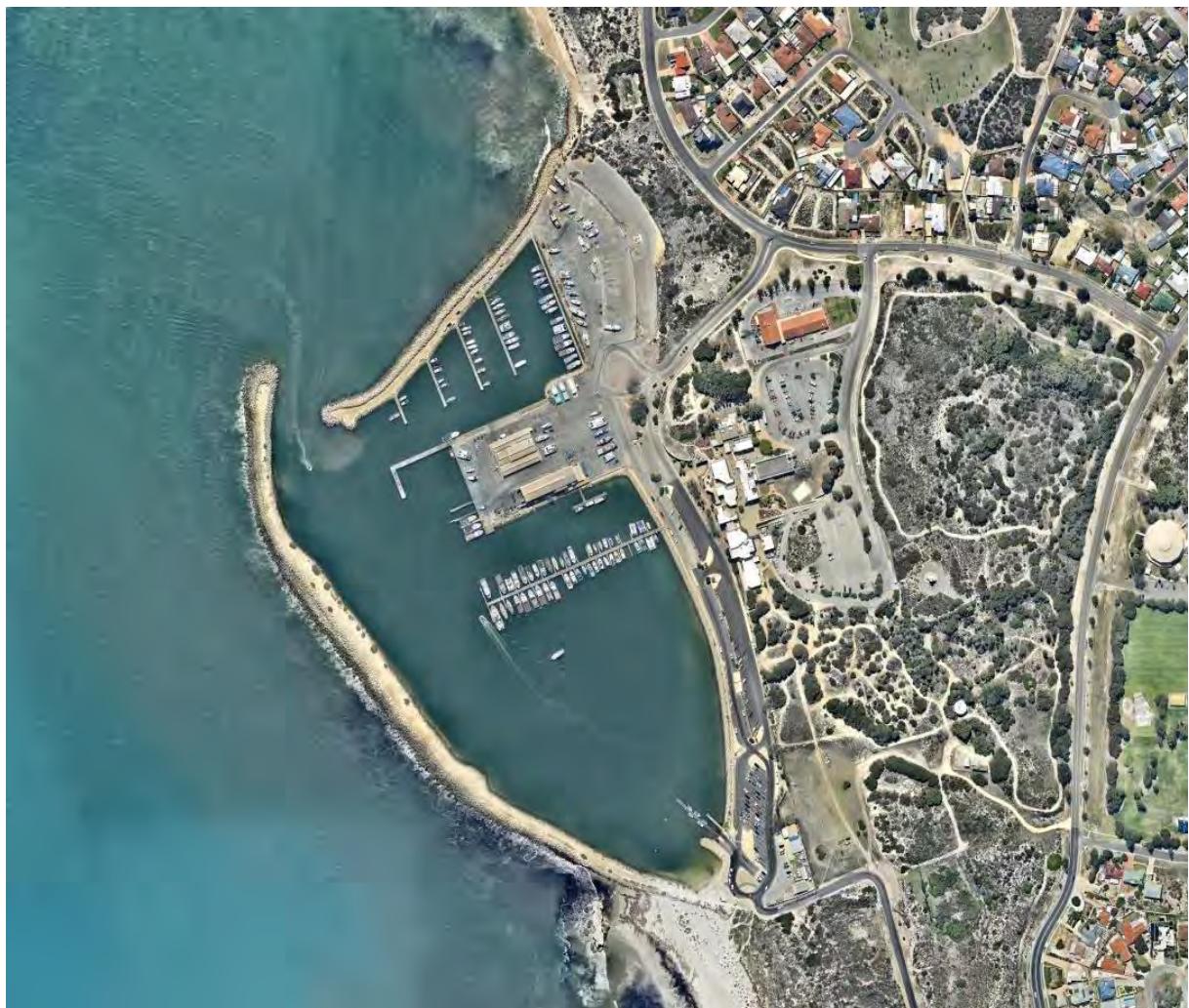
Planning and design activities are well under-way with Landcorp taking the lead project management role.

## 7.2 Two Rocks Boat Harbour

7.2.1 Recommendation: construct 2 additional ramp lanes.

7.2.2 Recommendation: construct 350 (min) additional moorings.

7.2.3 Recommendation: construct a 200-bay boat stacker



Since its development commenced in 1973, the Two Rocks Boat Harbour was privately managed under lease agreements with the State Government. In 2014, the facility returned to State Government and is now managed by the Department of Transport. Since its return, the existing 2 lane public boat ramp has been upgraded and the adjoining parking area has been refurbished to increase trailer parking capacity from 38 to 99 bays.

Within the existing harbour breakwaters, planning is under way to increase the number of boat ramp lanes from 2 to 4; with boat pens expected to increase from 100 boat pens to 200.

Longer-term, planning is underway to expand the harbour by re-configuring and extending the breakwaters to permit the addition of new infrastructure such as an additional 250 boat pens and a 200-bay boat stacker. A new 6 lane boat ramp is also proposed, to replace the existing 4 lanes, but the additional 2 lanes are not counted on for 2036. The expanded boat harbour is intended to accommodate the expected increase in recreational vessel registrations in the northern-most metropolitan sector plus commercial fishing vessels that rely on the harbour for safe anchorage and chandlery services.

## 7.3 Port Rockingham

### 7.3.1 Recommendation: construct 500 boat pens in a new marina



The proposed privately-developed Port Rockingham marina is planned to be located in Cockburn Sound just north of Mangles Bay where Wanliss St intersects Rockingham Beach Rd.

The Environmental Protection Authority published a report (no. 1339) in 2009. The report identified the closest marinas (providing public boat pens) to Port Rockingham as Mandurah Ocean Marina (27 kilometres to the south) and the Fremantle boat harbours (20 kilometres to the north).

The project is planned to include 500 boat pens, commercial floor space, expansion of the Wanliss St car park and public fishing jetties.

The EPA has recently extended approval for the project out to February 2020 and a development application has been lodged with the City of Rockingham.

## 7.4 Point Peron Boat Launching Facility

### 7.4.1 Recommendation: construct 2 additional boat ramp lanes.



The City of Rockingham has undertaken a planning study to investigate the addition of two boat ramp lanes and trailer parking at the existing Point Peron boat launching facility. The planning study was undertaken with funding assistance provided by the Department of Transport Recreational Boating Facilities Scheme.

The two additional boat ramp lanes are proposed to be located between the two existing 2-lane boat ramp sets, effectively replacing the existing boat holding jetty. Additional trailer parking is also proposed as an extension of the existing trailer parking area.

The Review supports the provision of 2 additional boat ramp lanes, together with associated trailer parking, at the Point Peron boat launching facility.

## 7.5 Port Coogee

### 7.5.1 Recommendation: construct 150 additional boat pens



The current boat pens of the Port Coogee marina were constructed from around 2011. The marina includes a water area of about 28 ha and approved plans allow for a total of 300 public boat pens plus an additional private pens as part of the canal development.

To date, 150 public boat pens have been built. The construction of an additional 150 boat pens is currently being considered by the City of Cockburn.

## 7.6 Woodman Point Recreational Boating Precinct – Boat Stacker

### 7.6.1 Recommendation: construct a 300 bay boat stacker.



The Woodman Point Recreational Boating Precinct is located in the suburb of Coogee and is situated within the Department of Transport Reserve and within the Woodman Point Regional Park. With direct access to the semi-sheltered waters of Cockburn Sound, it is the most popular recreational boat launching facility in the State.

Since 2008, the facilities within the Precinct have expanded to include an additional four boat ramp lanes, two boat holding jetties and a universal access pontoon. The previous overflow trailer bay car park has also been sealed and integrated into the greater trailer parking area. Currently a total of 8 public boat ramp lanes and 400 trailer parking bays are available.

The Cockburn Power Boat Association also provides 5 boat launching lanes and hardstand for its members. Recently the Association has added about 16 boat pens.

The Review recommends the addition of a 300-bay boat stacking facility. The addition of the boat stacker is consistent with master planning for the Woodman Point Recreational Boating Precinct.

## 7.7 Fremantle Fishing Boat Harbour

### 7.7.1 Recommendation: construct 50 additional boat pens



The process of upgrading boat pens in the Fremantle Fishing Boat Harbour is ongoing with the overall number of recreational pens expected to increase as the works are implemented. The Review envisages the Harbour will generally retain its current configuration with an emphasis on improving existing facilities.

Between 2008 and 2018, a fuelling jetty and 3 boat stacking facilities have been constructed plus about 50 new recreational boat pens. Plans are in place to refurbish existing pen sets as they come to the end of their working life.

The Review recommends that an allowance of further 50 recreational boat pens by 2026 be made for the Fremantle Fishing Boat Harbour.

## 7.8 Eglinton Marina

**7.8.1 Recommendation: construct 2 boat ramp lanes in a new marina**

**7.8.2 Recommendation: construct 150 boat pens (min).**



Part of Indicative Master Plan, Eglinton LSP No.82, 2016 (Eglinton Estates)

Eglinton is located approximately 40km north of the Perth CBD. The suburb is named after the barque *Eglinton*, which was wrecked on rocks near Alkimos in 1852. The proposed development area is within the boundaries of the City of Wanneroo.

The Study noted a number of approvals in place for the construction of a small marina. Plans indicate an intention to build a two-lane boat ramp plus at least 150 moorings.

To date, no construction has been undertaken. The proposed Eglinton Marina is included in this Review for planning purposes.

## 7.9 Woodman Point Recreational Boating Precinct – Harbour Extension

### 7.9.1 Recommendation: plan and construct 300 new boat pens.

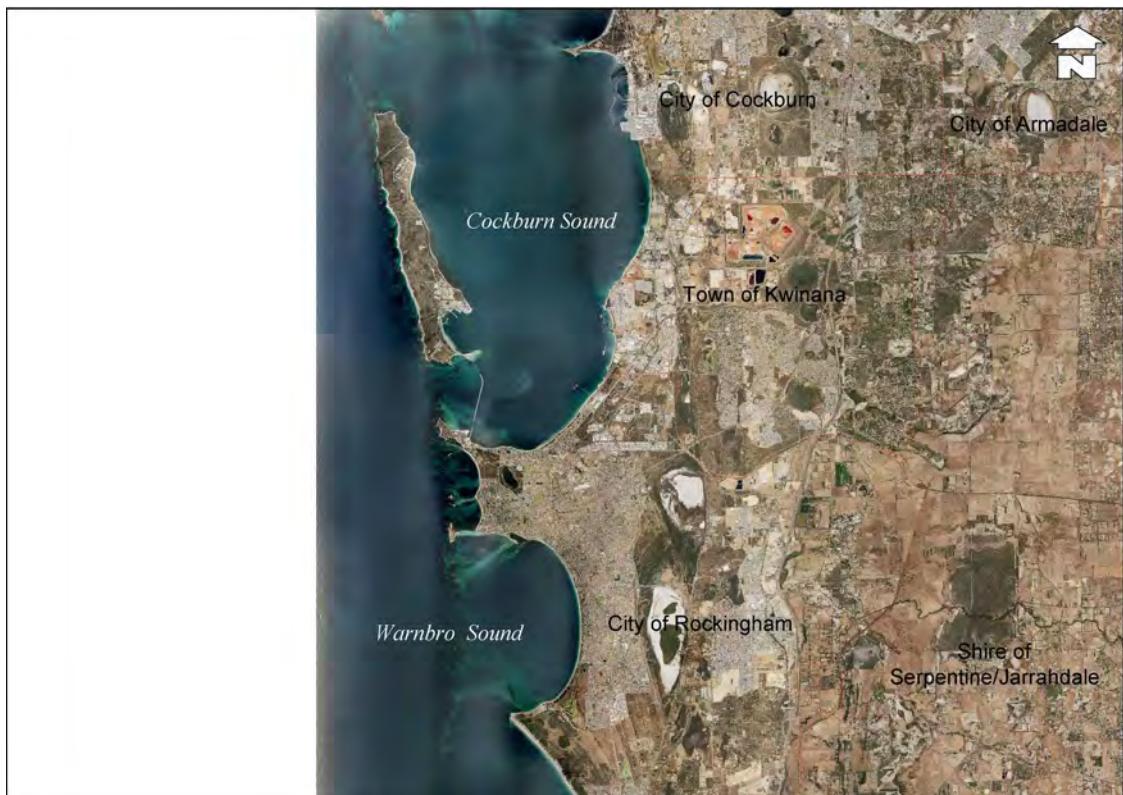


The Woodman Point Recreational Boating Precinct (Precinct) was established with the aim of becoming the regional hub for recreational boating activities. Already existing are a sheltered harbour with 8 public boat ramp lanes, boat holding jetties and 400 trailer parking bays. Other facilities planned for the site include commercial leasehold land that will permit the establishment of support facilities for recreational boating such as boat service, sales and repair as well as a 300-bay boat stacker. A resident private boating club also provides boat launching and hardstand as well as a small number of boat pens. Adjoining land, but currently outside of the Precinct, is earmarked for the servicing of larger non-trailered boats.

With suitable water space potentially available in the vicinity, the Precinct is well placed to expand to include an area of water that will accommodate a significant number of moored vessels. The Review has identified the need for a harbour extension to accommodate 300 boat pens. Subject to the usual stakeholder consultations, planning should commence as soon as possible to evaluate the various options that could accommodate the required boat pens plus associated facilities.

## 7.10 Southern Sector Boat Launching Facilities

### 7.10.1 Recommendation: plan and construct 8 additional boat launching lanes.



The semi-sheltered waters of Cockburn Sound and Warnbro Sound have long been considered ideal for boating by small craft. Existing public boat launching facilities in the southern sector area operate at capacity on good boating days. With the Local Governments' of Rockingham and Kwinana predicted to experience population growth to 2036 of about 47% and 95% (respectively) and the City of Rockingham having (in 2018) Perth's second highest number of registered vessels there is a need for additional boat launching facilities to serve the region's future needs.

Determining sites that are suitable and available for development and redevelopment will be key tasks in the early planning phases. A Strategic Planning Study should be initiated as soon as possible to examine potential sites. The availability of suitable land and shore will be amongst the key factors to be addressed.

It is likely that the additional boat launching facilities would be developed at different sites in various stages but should be planned to include:

- A total of 8 additional boat ramp lanes
- Boat holding jetties
- Commensurate onshore trailer parking
- Sheltered water space that permits year-round launching and retrieval.
- Ancillary facilities such as public toilets.

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# Appendix A

## Review of 2008 Boating Study Recommendations

The tables below summarise the infrastructure development recommendations made in the 2008 Study.

The corresponding actions to date are noted against each of the recommendations.

### Short Term Initiatives (to 2012)

<i>Government funded facilities:</i>	Recommendations	Actions to date
Expand the numbers of boat pens in the Hillarys Boat Harbour.	21 pens	33 additional moorings installed
Expand the facilities within the Woodman Point (Jervoise Bay) Recreational Boating Precinct, including construction of further ramps and a boat stacking facility.	4 lanes & 300 bay boat stacker	4 lanes added. Storage capacity to CBPA and Pleasure boat storage increased
Expand the number of boat pens and support the establishment leased dry facilities storage (boat stackers) within the Fremantle Fishing Boat Harbour.	242 pens	52 additional pens constructed. 278 moorings added (50% of the 556 boat stacker bays)
Develop a coastal public boat launching facility in the Fremantle area (Stage 1).	4 lanes	No Action
Upgrade the boat ramp at the Two Rocks Boat Harbour.	2 lanes	No additional lanes but ramps upgraded and jetties replaced; trailer parking increased
<i>Privately funded facilities: (based on known proposals)</i>		
Expand the number of boat pens within the Mindarie Marina.	256	200 new pens installed
Develop private marina pens and residential berths at Port Coogee. (Part 1)	180	150 marina pens constructed
Develop the Eglinton Marina including ramps and pens.	200 pens and 2 lanes	No Action

Develop the Port Kennedy public boat ramps.	2 lanes	2 lane boat launching facility constructed in 2010
Expand the number of boat pens within the Ascot Waters Marina	62	73 new pens installed in 2010
Expand and or re-organise the pen capacity of yacht clubs (Part 1)	235 in the short term, 82 in the medium term	Refer Medium Term Initiatives

### Medium Term Initiatives (to 2018)

<i>Government funded facilities:</i>	<b>Item</b>	<b>Section</b>
Develop a marina in Mangles Bay.	500 pens	No Action
Develop a coastal public boat launching facility in the Fremantle area (Stage 2).	4 lanes	No Action
Develop a new public harbour near Alkimos on the north Metropolitan coast (Stage 1).	4 lanes, 200 pens	No Action
<i>Privately funded facilities</i>		
Expand the number of boat pens in Two Rocks Boat Harbour. (Note: now a Government Facility)	2 lanes, 250 pens	In Planning
Expand and or re-organise the pen capacity of Yacht Clubs. (Part 2)	82 pens	174 pens added
Develop private marina pens and residential berths at Port Coogee (Part 2)	180 pens	In Planning
Expand the number of pens within the Fremantle Sailing Club.	500 pens	No Action

### Long Term Initiatives (to 2025)

<i>Government funded facilities:</i>		
Expand the number of ramps within the Point Peron Boat launching harbour.	2 lanes	In Planning

Develop a new harbour with pens, incorporating the existing Ocean Reef boat launching facility.	600 pens	In Planning
Develop a new public harbour near Alkimos on the north Metropolitan coast (Stage 2).	4 lanes, 600 pens	No Action
Commence Stage 1 of the expansion to the Fremantle Boat Harbours (as per the Harbours Policy).	500 pens	No Action
<i>Privately funded facilities</i>		
None currently identified		

# Maps

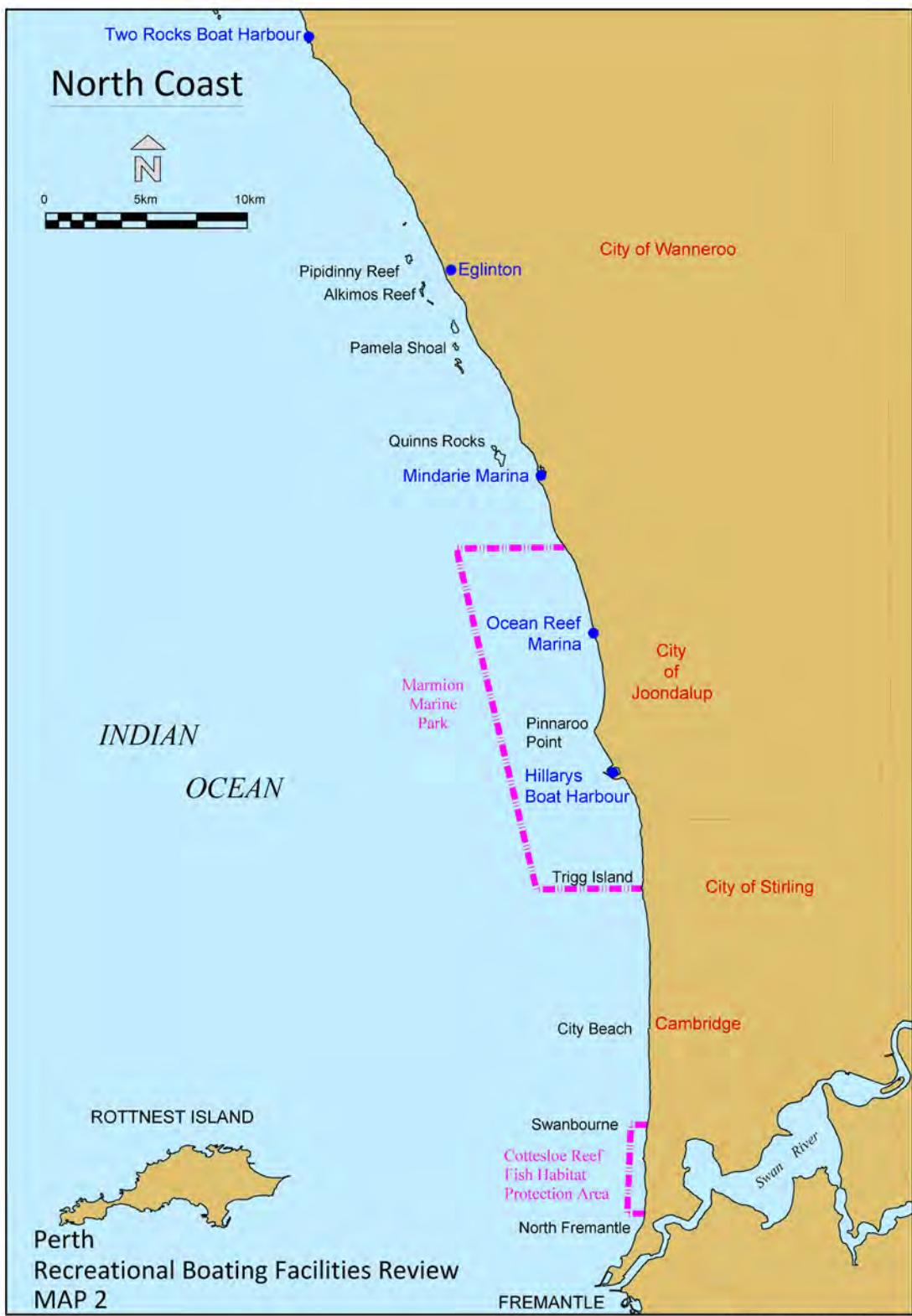




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**Map 1 Metropolitan Sectors**





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**Map 2 North Coast**



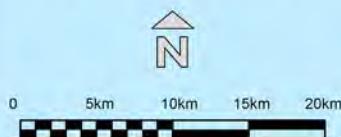


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### Map 3 South Coast



## Recommendations



Recommendations	
Rec.	Location
1	Ocean Reef Marina
2	Two Rocks Boat Harbour
3	Port Rockingham
4	Point Peron Boat Launching Facility
5	Port Coogee
6	Woodman Point Recreational Precinct - Boat Stacker
7	Fremantle Fishing Boat Harour
8	Eglinton Marina
9	Woodman Point Recreational Precinct - Harbour Extension
10	Southern Sector Boat Launching Facilities

Ref: Table 19



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Recreational Boating Facilities Review  
MAP 4



Plan No: 1846-01-05\_Adeg Date: May 2019



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## Map 4 Recommendations