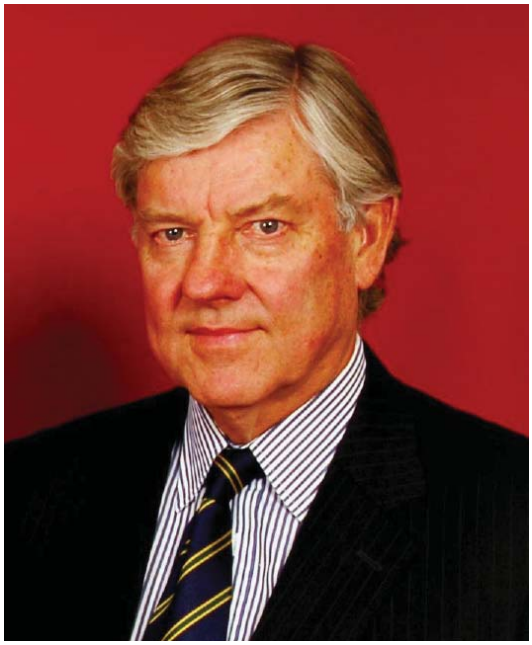
GOVERNMENT OF WESTERN AUSTRALIA

SWAN RIVER TRUST

Boating Management Strategy for the Swan Canning Riverpark

February 2009

CHAIRMAN'S FOREWORD



Boating in the Swan Canning Riverpark has long been part of Perth's lifestyle.

The sustained growth of this activity has resulted in a large increase in boating registrations and activity that we see in the Riverpark today.

While enjoyment of the Riverpark by the boating community is encouraged, it is vital to manage any impacts of this activity to ensure enjoyment of our precious river resources can be shared by all users.

The development of this strategy has resulted largely from increased demands for boating and growing community concerns regarding the social and environmental impacts of boating in the Riverpark. There is also a strong need to plan for increased boat use to minimise future impacts and optimise the usage of the Riverpark by the community.

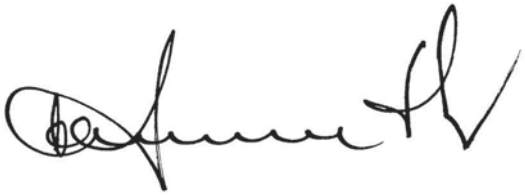
While numerous threats to the health and amenity of the Swan Canning Riverpark are being addressed by other management programs, the management of boating needs to be integrated with existing Trust programs to ensure we maintain a system view and apply cost effective management.

In the past, boating management in the Riverpark has lacked coordination and collaboration between management agencies. Additionally, management has focused on boating safety and commercial aspects rather than the needs of all users and the social and environmental aspects of boating.

This strategy aims to address these issues by applying a sustainable approach to boating management and facilitating a collaborative approach between State and local government, the boating industry, community and other river care groups.

Throughout the development of this document, the Trust has applied an inclusive, consultative approach. We are confident the outcomes of the strategy will help to achieve better coordination and a joint management effort to ensure the sustainable use and enjoyment of the Riverpark in the future.

The Trust looks forward to working with all its partners in implementing the recommendations in this strategy for the future protection of the Swan Canning Riverpark.



Jim Freemantle
A/CHAIRMAN

EXECUTIVE SUMMARY

Boating in the Swan Canning Riverpark is an activity close to the hearts of many people in Perth as evidenced in the Swan River Trust Community Survey of Future Values and Aspirations for the Swan and Canning Rivers (2007). The Trust works with the community, industry, and local and State government to ensure the Riverpark is conserved and managed so its environmental quality is maintained and improved, and people can continue to enjoy it.

The social and environmental impacts that boating activities can have on waterways are well documented. Social impacts are in some ways more challenging to manage and require equal consideration alongside environmental concerns. The Swan River Trust responds to concerns regarding loss of amenity in the Riverpark. These include exacerbated foreshore erosion, fuel and oil spills and contamination of river sediments, limiting public access and use of river beds and banks. The Trust recognises these issues and anticipates an increase in pressure given strong growth in boating registrations and demands on facilities.

The Boating Management Strategy was initiated by the Trust to address the following range of boating issues and activities which may affect the enjoyment and health of our waterways:

- boat accommodation including moorings and marinas;
- dinghy storage on foreshores;
- boat maintenance practices;
- boat wash;
- boat noise;
- fuel and oil discharge;
- boat launching facilities;
- sewage disposal;
- jetties; and
- anchor and boat damage to the riverbed.

The aim of the strategy is to promote the responsible use of the rivers for boating without adversely affecting the environment or other river users.

This strategy will be a key policy document outlining the management approach to boating activities which may affect the rivers. It aims to engage and coordinate other management agencies with a joint responsibility for the rivers and foreshores. Primary agencies include: Department for Planning and Infrastructure (DPI); Department of Environment and Conservation (DEC); Western Australian Planning Commission; Water Police; and local government with management responsibilities along the Swan and Canning rivers.

Management of the issues is complex. A range of challenges exist, including language and literacy barriers to education, resistance to behaviour change, enforcement and resource limitations, information gaps and collaborative requirements. Management recommendations take into account these constraints.

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1.2	Investigate the most efficient way to help meet the increased demand for boat accommodation in the Riverpark without significantly increasing the area of riverbed alienated through rationalisation of mooring and marina-style accommodation
1.3	Investigate increasing the storage density of existing mooring areas through the installation of alternate systems, with careful consideration for protecting amenity and environmental values
1.4	Investigate mooring usage levels
1.5	Establish permanent and short-term private mooring use as a precursor to establishing an expanded shared mooring system
1.6	a) Increase the number of short-stay public courtesy moorings including through the surrender of private moorings in conjunction with expansion of a shared mooring system b) Allow four-hour stays between 7am and 7pm and overnight stays between 7pm and 7am only on courtesy/public moorings/pens adjacent to shoreline facilities (e.g. toilet blocks)
1.7	Expand on existing mooring sharing opportunities through DPI nominating additional users for short-stay moorings
1.8	Allow only one Riverpark mooring licence per person
1.9	a) Work with DPI to phase-out the transfer of mooring licences to parties nominated by licensees b) Introduce a wait list system to reallocate moorings
1.10	a) Introduce third party insurance as a requirement for acquiring or renewing a mooring licence b) Make an annual mooring inspection a requirement of the annual renewal process
1.11	Consider relocating mooring areas if they are found to cause unacceptable social or environmental impacts
1.12	Continue to monitor and assess social and environmental impacts of moorings and encourage DPI to consult with key stakeholders regarding impacts of future mooring developments

2 Dinghy storage on foreshores

2.1	Work with DPI to distribute education information to mooring licence holders and the community regarding impacts of dinghy storage on the foreshore
2.2	Support local government development of control measures for dinghies on the foreshore
2.3	a) DPI advise mooring licensees of requirement to identify tenders b) Investigate working with local government to remove dinghies from foreshore areas
2.4	Conduct an investigation into the usage of dinghies on the foreshore
2.5	Support a trial dinghy management system before long-term management systems are imposed
2.6	Investigate funding opportunities for dinghy storage facilities as appropriate
2.7	Any storage facilities be positioned, where practical, near gazetted mooring, boat launching and public amenity sites
2.8	Once management plans are implemented, no dinghy is to be left on the foreshore unless in an applicable local government management system
2.9	Investigate the feasibility of implementing a user-pays shared dinghy system for recreation and mooring access

3 Boat maintenance practices

3.1	Investigate medium to long-term opportunities to locate maintenance facilities away from the Riverpark
3.2	a) Continue to distribute guidelines for responsible boat maintenance practices in conjunction with DPI b) Investigate in partnership with DPI opportunities to reach a greater number of boating community members in particular those not associated with clubs and marinas
3.3	Continue to research levels of contaminants arising from boat maintenance near the Riverpark, and where possible, identify the source of contamination
3.4	Continue to enforce *Environmental Protection Regulations 1987* by prosecuting anyone found to be a source of tributyltin (TBT) pollution
3.5	Recommend an amendment to the *Environmental Protection Regulations 1987* to include making it an offence to possess a banned substance on the hull of a vessel
3.6	Seek advice from Department of Health on public health risks associated with consumption of fish contaminated with TBT and other heavy metals arising from boat maintenance
3.7	Continue to work with yacht clubs and marinas to implement best practice Environmental Management Systems for boat maintenance. Maintenance is to be prohibited where adequate systems have not been implemented
3.8	Continue to encourage the sharing of high-quality boat maintenance facilities between yacht clubs and marinas

4 Boat wash

4.1	Enhance enforcement of speed zones (in particular low speed zones) in the Riverpark
4.2	Establish 'low wash' zones and install signage in areas with significant environmental, public safety or property risks
4.3	Continue community awareness and education projects about boat wash
4.4	Work with commercial operators to reduce boat wash through behaviour change and eventual replacement of existing fleet with river-friendly craft enforced through the new Trust licensing system
4.5	Investigate wash mitigating devices for sensitive foreshore areas
4.6	Promote research into wash minimising hull designs
4.7	Undertake further investigations in 2008-10 to address boat wash impacts. This will inform the River Protection Strategy and associated management programs in implementing appropriate targets, timelines and possible penalties

5 Noise

5.1	Trust to facilitate discussion between peak management bodies to achieve better, more coordinated management of noise generated by speedboats and jet skis
5.2	Enforce existing noise regulations as appropriate
5.3	Education via Recreational Skippers Ticket requirement, peak bodies and ongoing education programs for yacht clubs, sailing clubs and marinas
5.4	Apply recognised industry standards for noise control apparatus through manufacturing and importing bodies

6 Fuel and oil discharge

6.1	Require refuelling operators to implement an Environmental Management System to reduce likelihood and impact of fuel spills
6.2	a) Work with community and partners to achieve behaviour change b) Distribute education information to the boating public on responsible practices and existing public fuelling facilities
6.3	Encourage the use of oil separators/filters, oliophilic pads or other effective devices in bilges
6.4	Support compliance of new engines with an international environmental emissions rating standard
6.5	Continue to audit and improve implementation standards for club and marina Environmental Management Systems

7 Boat launching facilities

7.1	Expand and/or upgrade existing priority launching facilities, parking and amenities in the Riverpark where feasible
7.2	Encourage developing coastal facilities to relieve pressure in the Riverpark
7.3	Increase compliance enforcement for illegal boat launching

8 Sewage disposal

8.1	Work with DPI and local government to determine the feasibility and appropriate location for a public pump-out facility in the Perth Metropolitan Region
8.2	Consult with local government regarding the provision of toilets and other amenities at river entry points
8.3	Work with key stakeholders to continue education of recreational boat users about the importance of appropriate sewage disposal
8.4	Support DPI's amendment of the *Pollution of Waters by Oil and Noxious Substances Act 1987* to facilitate law enforcement regarding sewage disposal in the Riverpark
8.5	Encourage yacht clubs and marinas to install pump-out facilities if they do not already have them and make them available to non-club/marina members of the public

9 Jetties

9.1	Uphold the Trust's jetty structures policy SRT/D21 (allowing new public jetties to be developed in high-demand locations) and integrate development with land-based amenities
9.2	Establish more fishing platforms in high-demand locations, with consideration of community and environmental impacts
9.3	Develop equitable usage guidelines for public jetties between commercial and private vessels
9.4	Review existing legislation regarding the ability to remove 'squatters' from public/private jetties - if no adequate legislation exists, work with DPI to amend its *Navigable Waters Regulations 1958* to include such a provision

10 Anchor/boat damage to riverbed

10.1	Confirm the existing distribution of seagrass and other aquatic flora in the Swan Canning Riverpark below the low water mark
10.2	Designate and signpost significant seagrass areas as 'no anchor' zones, recognising emergency access as a priority
10.3	Install public moorings around no anchor zones where access has been reduced
10.4	a) Upload information to the Trust website about the significance of seagrass b) Seagrass protection information to be distributed widely through Trust publications (brochures, newsletters, signs) as appropriate

1. INTRODUCTION

1.1 Background

Boating in the Swan Canning Riverpark is part of the Perth way of life. It plays an important part of our cultural heritage and contributes greatly to social and economic values. The Trust promotes responsible enjoyment of boating as one of many recreational and commercial uses of the Riverpark. However, to ensure that the same positive experiences can be enjoyed by future generations, activities need to be carefully managed. The boating and non-boating community alike has expressed the view that boating management can be done better. The Boating Management Strategy is an immediate response to indicate the Trust's willingness to help improve and sustain the management of boating activities.

Boat ownership and subsequent demands for use and facilities in Perth waters have increased dramatically during the past decade. Since 1997, recreational licences in Western Australia have increased by 50 per cent, with more than half of these based in the Perth region (Department for Planning and Infrastructure, 2007a).

As an outdoor activity, this mainly occurs during summer and on weekends all year round, with January and February particularly popular. Boating includes yachts, powerboats, ferries, row-boats, kayaks, canoes and other water craft. A range of other activities are carried out in the Riverpark including swimming, fishing and bird watching.

In addition to the social value of family and friends enjoying time together boating in the Riverpark, the economic value of boating in Perth is substantial. The recreational boating industry plays a significant role in WA tourism with recreational boating being one of the top ten activities people undertake when on a holiday. For the 2005-06 period, the recreational boating industry in Western Australia generated $1,580m in spending and supported more than 7,000 jobs directly and indirectly (Economic and Market Development Advisors, 2007).

There is an increasing potential for social and environmental impacts on the Riverpark with the growth in activity on and around the rivers. Indicators of environmental condition, including damage to foreshore vegetation, riverbank erosion, reduced water quality and impacts on aquatic fauna are showing decline and require a holistic management approach. Although such damage is attributable to a range of causes, boating activities contribute to these adverse impacts. In addition to environmental impacts, conflicts between river user groups and other social impacts are likely to increase in the future.

The management of boating activities in the Riverpark is spread across several State and local government agencies including the Swan River Trust, Department for Planning and Infrastructure (DPI), Department of Environment and Conservation (DEC), numerous local government authorities, the WA Planning Commission and WA Water Police. This illustrates the need for an integrated approach to managing boating in the Riverpark between these agencies.

1.2 The need for a Boating Management Strategy

With a further 38 per cent increase in recreational licences forecast for the next ten years, it is vital to manage all aspects of boating activities while planning for growth (Department for Planning and Infrastructure, 2007a).

The development of this strategy is in response to community requests to immediately improve the management of boating activities in the Swan Canning Riverpark. The strategy aims to engage and better coordinate the roles of Government agencies responsible for managing boating issues.

Boating activities in the Riverpark affect not only boat users but a range of other river users. Engaging with all stakeholders was therefore a priority to ensure the needs of all river users were met.

Finally, the Boating Management Strategy identifies gaps in existing knowledge of boating activities and recommends further research to be undertaken to make more informed decisions.

To address the need for better management of boating activities, specific management actions for each issue have been developed.

1.3 Scope and context

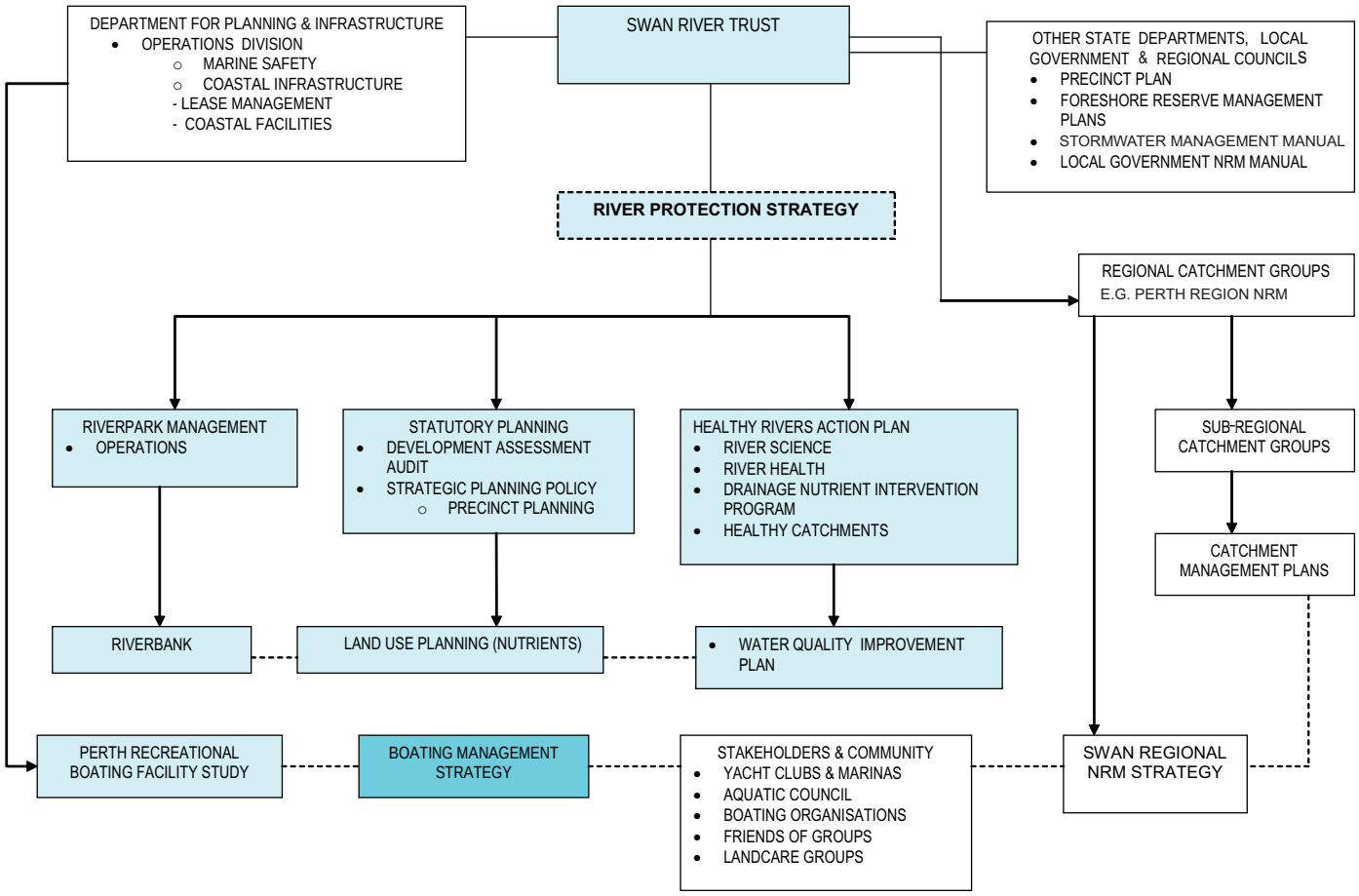
The Boating Management Strategy is designed to provide guidance to immediately begin to better manage boating activities. However this strategy is only one of many management programs undertaken by the Trust and other organisations with responsibilities for the Swan Canning Riverpark. The following diagram illustrates how the Boating Management Strategy fits in a broader framework of management programs. This is not intended to be comprehensive but indicative of the range of management aspects addressed through complementary programs.

The Boating Management Strategy was developed by the Trust under the overall Government priority to protect and enhance Western Australia's unique lifestyle and environment. On 25 September 2007 the *Swan and Canning Rivers Management Act 2006* and associated legislation came into effect. The legislation provides mechanisms to better protect the rivers through a more coordinated management framework to deal with commercial and recreational activities including not only boating but a broad range of urban and rural influences on the rivers.

As required by the Act, the Trust is developing an over-arching River Protection Strategy to achieve ecological and community benefit and amenity targets. Management programs which are consistent with the strategy, such as programs for development control, water quality and general Riverpark management, will address specific issues in more detail. The Boating Management Strategy will be driven by the Riverpark management program but will seek collaborative effort through partnerships with many other organisations.

The Trust will be working particularly closely with DPI as a key stakeholder in implementing the Boating Management Strategy because of related responsibilities in boating activity management aspects, including River Reserve leases, moorings, boat ramps and jetties. The implementation of recommendations of the Perth Recreational Boating Facilities Study prepared under the Perth Coastal Planning Strategy will have a major influence on the future of boating in the Swan Canning Riverpark.

Figure 1 Management context of the Boating Management Strategy



1.4 Aim of the strategy

To facilitate better management of boating activities in the Swan Canning Riverpark without adversely affecting the environment or other river users.

1.5 The process

This strategy has been developed using a consultative and transparent approach. Several opportunities were offered to stakeholders to develop management actions during the development of the strategy.

As part of the development process, the following tools to create a management framework were considered by the Trust:

- education to achieve behaviour change;
- collaborating with other stakeholders;
- providing facilities;
- usage control;
- additional funding;
- sharing resources between user groups;
- amending existing legislation;
- research into boating impacts, environmental indicators and new technologies; and
- policing and enforcement.

How we arrived at the strategy:

2007	**March**	project inception, stakeholders identified and contacted
	May	discussion papers circulated to stakeholders for comment
	August	discussion forum regarding management actions
	October	stakeholder focus groups discuss specific management actions
2008	**January**	draft Boating Management Strategy released for public comment
2009	**January**	final strategy released

2. BOATING MANAGEMENT ISSUES

2.1 Moorings

2.1.1 The issues

The 18 allocated mooring areas in the Swan Canning Riverpark have reached capacity and there is minimal opportunity to increase the number of existing swing moorings in these areas. This situation exists at a time of unprecedented demand for moorings by a growing boating community combined with a trend towards larger vessels which require on-water storage (DPI, 2007b; Nicholson, P [Department for Planning and Infrastructure], Moorings, 2007 pers. comm). An indication of this demand was seen in Bull Creek where a significant number of moorings were installed. This brought the total number of moorings in the 18 gazetted mooring areas to 1078. This number does not include moorings in the riverbed lease areas of yacht clubs. Additionally, DPI and the Trust have provided public courtesy moorings in several locations for short-term use.

The only way to significantly increase the number of moorings in these areas given the existing allocated mooring areas have reached capacity with the existing swing mooring systems, would be to increase mooring density by replacing these moorings with alternative systems. However, an increase in mooring numbers has previously resulted in significant impacts, such as uncontrolled dinghy storage on foreshore areas and other social and environmental concerns.

The Trust recognises moorings are not an efficient way to accommodate boats in the Riverpark. The area taken up by one boat on a swing mooring could accommodate many more boats in a marina. The increased competition for space on the rivers means the Trust must consider efficient boat accommodation in its decision making to prevent further alienation of areas in the Riverpark. This raises the prospect of a reduction in mooring areas with an increased area for marinas but with less overall alienation of the river bed.

In addition, some local authorities believe there are already too many moorings particularly in the middle to upper reaches of the Swan Canning Riverpark.

Other issues including affordability and equity of access to moorings need to be considered.

Site inspections by Trust officers indicate that a significant proportion of moorings remain unused for much of the year. Mooring latency may also be exacerbated by individuals having more than one on-water storage space (e.g. river mooring, yacht club or marina pen) and use of Rottnest moorings. The opportunity exists to increase the usage efficiency of infrequently used moorings as opposed to those used for permanent storage.

The only sharing of moorings is achieved by the licence holder nominating who they wish to have access to the mooring rather than it being publicly available, which is made possible by a section in the *Mooring Regulations 1998*. Allowing the transfer of the right to mooring use from one licensee to another in perpetuity has two consequences. Firstly, it restricts access to moorings so there is very little opportunity to allow new people to experience use of a Riverpark mooring. Secondly, it increases the economic value of the mooring licence to a price where few people may be able to afford it. Additionally, a licensee may hold more than one mooring licence.

While the capacity of on-water storage in existing mooring areas has been reached under the swing mooring system, there may be capacity for yacht clubs to expand pen numbers in their existing lease areas. This would relieve storage pressure on moorings and may allow for the removal of some swing moorings in high impact areas. Additionally, the opportunity for development of boating facilities on the coast far exceeds that of the Riverpark. This has been widely acknowledged by stakeholders and is being addressed by DPI.

2.1.2 Recommendations

The Trust recognises the demand for increased boat accommodation in the Riverpark but does not favour any increase in mooring areas. The Trust has a responsibility to protect the community benefit of the Riverpark for all West Australians to prevent further alienation of the riverbed. Boaters are only one of a diverse range of user groups to be considered. The investigation of more efficient mooring systems to enable increased density in gazetted areas is supported subject to careful consideration of amenity and environmental impacts. Further, given the disproportion of river versus coastal boating facilities and the greater opportunity for expansion of facilities along the coast, the preference is to ease pressure on the Riverpark by expanding and developing coastal facilities and perhaps decrease mooring areas in the rivers.

The Trust supports the request for an increase in availability of 'short-stay' moorings. Investigation into the extent of mooring latency can be used to assess the feasibility of infrequently used moorings being incorporated into an expanded shared mooring system. In the meantime, to allow convenient and free public access, the Trust plans to increase the number of short-stay courtesy moorings on the rivers.

The Trust does not support the transfer of mooring licences on the 'open market'. This system is not in the best interests of the community given the existing and future levels of demand exceeding supply of river moorings.

Should an expansion of a shared mooring system occur and/or the transferability of mooring licences be prohibited, it is likely that a waiting list for mooring licences would also be established.

The Trust believes that there should be a more balanced consideration of environmental and social amenity impacts of moorings rather than management decisions being based solely on safety and economic considerations. Further, a higher level of stakeholder and community consultation regarding changes to the area, number, density and/or management system of Riverpark moorings should be conducted.

Ensuring that vessels and moorings are adequately maintained to avoid vessels breaking free of moorings and causing damage to other property is also a Trust concern.

Recommendation 1.1

Strongly support DPI position to give priority to developing and expanding ocean-based on-water storage to reduce mooring dependency.

Recommendation 1.2

Investigate the most efficient way to help meet the increased demand for boat accommodation in the Riverpark without significantly increasing the area of riverbed alienated through rationalisation of mooring and marina-style accommodation.

Recommendation 1.3

Investigate increasing the storage density of existing mooring areas through the installation of alternate systems, with careful consideration for protecting amenity and environmental values.

Recommendation 1.4

Investigate mooring usage levels.

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Recommendation 1.5

Establish permanent and short-term private mooring use as a precursor to establishing an expanded shared mooring system.

Recommendation 1.6

a) Increase the number of short-stay public courtesy moorings including through the surrender of private moorings in conjunction with expansion of a shared mooring system.
b) Allow four-hour stays between 7am and 7pm and overnight stays between 7pm and 7am only on courtesy/ public moorings/pens adjacent to shoreline facilities (e.g. toilet blocks).

Recommendation 1.7

Expand on existing mooring sharing opportunities through DPI nominating additional users for short-stay moorings.

Recommendation 1.8

Allow only one Riverpark mooring licence per person.

Recommendation 1.9

a) Work with DPI to phase-out the transfer of mooring licences to parties nominated by licensees.
b) Introduce a wait list system to reallocate moorings.

Recommendation 1.10

a) Introduce third party insurance as a requirement for acquiring or renewing a mooring licence.
b) Make an annual mooring inspection a requirement of the annual renewal process.

Recommendation 1.11

Consider relocating mooring areas if they are found to cause unacceptable social or environmental impacts.

Recommendation 1.12

Continue to monitor and assess social and environmental impacts of moorings and encourage DPI to consult with key stakeholders regarding impacts of future mooring developments.

2.2 Dinghy storage on foreshores

2.2.1 The issues

The storage of private dinghies on foreshore areas around the Swan Canning Riverpark is a common practice. It should be noted that there are no general rights to store dinghies on public lands. Some areas are experiencing a large number of vessels in small sections of foreshore. Problems associated with this practice include:

- damage to foreshore vegetation and increased risk of riverbank erosion;
- restricted public access and use of the foreshore;
- creation of a public safety risk and associated duty of care issues;
- inhibition of routine foreshore maintenance operations or restoration works by local government and other authorities; and
- impact on the general amenity of the foreshore.

Historically, the storage of dinghies on foreshores has not been a major issue due to relatively low numbers. However, dinghies have accumulated over time, some of which appear to be abandoned (Davis [City of Melville] 2007 pers. comm). The local governments of Melville, Fremantle, Mosman Park, Peppermint Grove and East Fremantle have raised concerns with dinghy storage on public foreshore areas, however no single management approach has yet been agreed.

Investigation has revealed the majority of dinghies stored on the foreshore belong to mooring licensees (DPI, 2007c). Consequently, the greatest numbers of dinghies exist on the foreshore next to allocated mooring areas. Many of these foreshore areas are used regularly for a variety of public recreation activities other than boating.

To date, there has been very little regulation of dinghies left on foreshore reserves. This has been due in part to concerns between land managers about jurisdiction relating to the high water mark. Some local governments may require people to obtain permits to store their dinghies (Shire of Peppermint Grove, 1995), or ban dinghies on shorelines (City of Canning, 2007).

The Trust is prepared to consider the controlled storage of dinghies in facilities in Melville which would reduce the associated problems.

The provision of dinghy storage facilities at strategic foreshore locations already occurs in local councils such as Pittwater, NSW (Pittwater Council, 2007) and several Perth yacht clubs. The provision of such facilities may be appropriate where there is an opportunity to reduce dinghy impacts and there is no further alienation of valuable foreshore land.

Some local governments are considering the installation of dinghy storage facilities, although it is unlikely that the capacity of such facilities would meet existing or future demands. Furthermore, there are contested views as to whether private dinghies should be stored on public land in any manner whatsoever.

2.2.2 Recommendations

As there are several social and environmental impacts of dinghy storage on public foreshore areas, the Trust believes this issue needs to be managed. The Trust understands the impacts of dinghy storage and resource availability vary widely between local government areas, requiring a flexible approach to management of the issue. In some instances, local government may need financial support to manage this issue and the Trust may seek additional funding opportunities in these circumstances in accordance with budgetary priorities. In all instances, it will be important to strategically locate dinghy storage facilities for convenience to boaters and to minimise impacts on other river users and the environment.

Controlled dinghy management has not been undertaken extensively along the rivers and is an evolving process. The Trust supports further investigation, followed by a trial management system before longer-term

plans are formalised. The City of Melville may be an appropriate location for this given the density of dinghies in the area. Pending results of this investigation, the Trust will adopt a formal position.

It is the Trust's view that efficiency of dinghy storage on the foreshore could be improved in several ways. Firstly, 'derelict' dinghies left unused on public foreshore areas should be removed. Assessment of the derelict dinghies is the most critical action. This could be conducted with assistance from DPI, identifying dinghies servicing parent vessels on moorings and tagging other dinghies with removal notifications after a prescribed period before removal. Secondly, evidence suggests many dinghies on private foreshore are not used regularly. Research into usage may reveal an opportunity to establish a shared dinghy system, where fewer dinghies are required to service multiple users. Lastly, pending research findings confirming irregular use of dinghies, investigation into the feasibility of establishing a limited number of dinghies for public use may be warranted.

The Trust believes education about dinghy impacts and adequate notice of changes should be provided to owners. An opportunity for the Trust to distribute such material to mooring licensees is available through DPI's licensing system.

Recommendation 2.1

Work with DPI to distribute education information to mooring licence holders and the community regarding impacts of dinghy storage on the foreshore.

Recommendation 2.2

Support local government development of control measures for dinghies on the foreshore.

Recommendation 2.3

a) DPI advise mooring licensees of requirement to identify tenders.
b) Investigate working with local government to remove dinghies from foreshore areas.

Recommendation 2.4

Conduct an investigation into the usage of dinghies on the foreshore.

Recommendation 2.5

Support a trial dinghy management system before long-term management systems are imposed.

Recommendation 2.6

Investigate funding opportunities for dinghy storage facilities as appropriate.

Recommendation 2.7

Any storage facilities be, where practical, positioned near gazetted mooring, boat launching and public amenity sites.

Recommendation 2.8

Once management plans are implemented, no dinghy is to be left on the foreshore unless in an applicable local government management system.

Recommendation 2.9

Investigate the feasibility of implementing a user-pays shared dinghy system for recreation and mooring access.

2.3 Boat maintenance practices

2.3.1 The issues

The management of boat maintenance facilities and their proximity to the water are important issues as maintenance can cause significant cumulative or even acute environmental damage to aquatic systems. Boat maintenance may include the use and/or discharge to the waterway of antifouling and cleaning agents, hydrocarbons, paint, solvents, dust and other chemicals. When released into the Riverpark, many of these substances have the potential to adversely affect aquatic marine life, water quality and public health (Tillmann et al, 2001). These impacts can be minimised by undertaking boat maintenance in a way that prevents substances entering the Riverpark.

A significant amount of boat maintenance is undertaken at yacht clubs and marinas, where a large number of vessels exist. The Trust has focused its efforts on these locations because of the proximity to the Riverpark and high concentrations of vessels. However, the Trust acknowledges boat maintenance also occurs outside these areas.

The Trust would prefer boat maintenance activities be located away from the Riverpark in appropriate industrial areas wherever possible, while acknowledging that some river-based facilities are required.

Findings from a study commissioned by the Trust in 2007 indicated high levels of anti-foulant tributyltin (TBT) in sediments at several Riverpark locations next to yacht clubs and marinas with slipway facilities (Oceanica, 2007). The study also indicated that levels of TBT in mussels around the East Fremantle area were of concern. *Environmental Protection Regulations 1987* prohibit the sale and application of TBT and removal of it and other antifouling compounds into the waterways. There is however no legislation prohibiting such products being present on the hull of a vessel. These products continuously dissolve from hulls into the water.

Antifouling compounds can accumulate in the flesh of aquatic fauna and, at high enough levels, are known to effect their reproductive cycles (Tillmann et al 2001). Public health could also be affected by ingestion of species harvested from the Riverpark. TBT has been banned in Australia on vessels under 25m in length since 1991 (*Environmental Protection Regulations, 1987*).

In response to the study's findings, the Trust has been working with yacht clubs and marinas with slipway facilities to develop sound Environmental Management Systems to address the issue and discuss the way forward.

2.3.2 Recommendations

Chemical contamination of the waterways from any source is of concern to the Trust. It is important to continue to take action against the pollution of the waterways and monitor sources of contamination to enable the most effective management response. In addition, the Trust encourages amendment of legislation to establish the presence of banned substances on vessel hulls as an offence. It is also important to understand the human health risks associated with consumption of seafood which contain antifouling compounds, through information from the Department of Health (DoH).

Again, the Trust believes continuing to educate the boating community through marinas and yacht clubs is an important avenue to achieving behaviour change in regard to boat maintenance. Continuing to work with yacht clubs and marinas to improve their Environmental Management Systems is also important.

Some boat maintenance facilities comply with high environmental standards expected by the Trust. To minimise the quantity of pollutants entering the Riverpark, the Trust encourages the sharing of high-quality maintenance facilities and consideration of locating these areas away from the Riverpark.

Recommendation 3.1

Investigate medium to long-term opportunities to locate maintenance facilities away from the Riverpark.

Recommendation 3.2

a) Continue to distribute guidelines for responsible boat maintenance practices in conjunction with DPI.
b) Investigate in partnership with DPI opportunities to reach a greater number of boating community members in particular those not associated with clubs and marinas.

Recommendation 3.3

Continue to research levels of contaminants arising from boat maintenance near the Riverpark, and where possible, identify the source of contamination.

Recommendation 3.4

Continue to enforce *Environmental Protection Regulations 1987* by prosecuting anyone found to be a source of tributyltin (TBT) pollution.

Recommendation 3.5

Recommend an amendment to the *Environmental Protection Regulations 1987* to include making it an offence to possess a banned substance on the hull of a vessel.

Recommendation 3.6

Seek advice from Department of Health on public health risks associated with consumption of fish contaminated with TBT and other heavy metals arising from boat maintenance.

Recommendation 3.7

Continue to work with yacht clubs and marinas to implement best practice Environmental Management Systems for boat maintenance. Maintenance is to be prohibited where adequate systems have not been implemented.

Recommendation 3.8

Continue to encourage the sharing of high-quality boat maintenance facilities between yacht clubs and marinas.

2.4 Boat wash

2.4.1 The issues

Boat wash is the wave action produced by vessels while they are underway. It can affect the environment by increasing shoreline erosion, which results in:

- damage to, and loss of, riparian vegetation;
- habitat destruction;
- increase in water turbidity and sedimentation; and
- nutrient release into the water (Marinfo, 2004).

Numerous studies have found that boat wash can contribute significantly to shoreline erosion, riverbed damage and other impacts (Marinfo, 2004; EPA, 2004; NHSC, 2001). However, other studies have shown that in some areas boat wash has less effect than wind and wave impacts. Although some research has been done, more detailed work is required in the Swan Canning Riverpark to gauge the impacts of boat wash on bank stability to ensure appropriate management strategies are introduced. While wind and tidal effects are largely uncontrollable, boat wash can be controlled to prevent exacerbation of riverbank erosion and consequential damage to foreshore vegetation.

Factors other than vessel speed which have an impact on wash include hull design, vessel load and motor leg trim (Marinfo, 2004). To control wash while operating a vessel it is necessary to understand the 'speeds' under which a boat operates.

i) Displacement speed – the slowest speed for boats which creates the least wash. The boat operates with the bow down in the water.

ii) Transition speed – an intermediate speed which creates the largest wash. As vessel power is increased the bow of the vessel raises and the stern 'digs in' as it falls into the trough of the bow wave.

iii) Planing speed – the fastest speed, which generally creates less wash than transition speed, but more than displacement. As the boat rises onto the 'plane' there is less hull in the water to produce wash. However, planing speeds may still produce waves with significant erosion potential.

The susceptibility of shorelines to boat wash depends on the characteristics of the shoreline and riverbed. Shoreline types are generally vegetated, sedimentary shore, rocky, man-made structures or mixed. The less fortified vegetative and sedimentary shorelines are notably more susceptible to the impacts of boat wash than others. The upper reaches of the Swan River shoreline (upstream of Heirisson Island) are predominantly vegetated, whereas the lower reaches are mostly sedimentary shore with built structures.

Besides environmental effects, boat wash can affect recreation and safety, by endangering swimmers, rowers, canoeists and wading anglers. Wash can rock, swamp or capsize boats, increasing risk of personal injury. Wash can cause damage to moorings and moored vessels, jetties and other structures, which is why marinas and yacht clubs are particularly susceptible to damage resulting from boat wash. Expensive foreshore works are often required to remediate damage from boat wash-exacerbated erosion.

Boat wash is most prolific in high traffic areas of the Swan River (downstream of Point Walter) affecting infrastructure, public safety and recreation, with minor environmental impacts due to highly modified shorelines. Although receiving less boat traffic, foreshores in the upper Riverpark are more sensitive to the effects of boat wash. This is due to the rivers being narrower with fewer man-made shorelines and having evolved as low wave energy systems sheltered largely from wind and tidal influences.

Unlike natural factors, boat wash is influenced by how boaters operate their vessels, and can therefore be managed. All boats create wash, however measures can be taken by boat operators to minimise the impact. Operating vessels at planing speed may produce relatively less wash than at transition speed, however it

is not always possible to allow such speeds due to safety issues. Research also suggests that high speed operating produces longer wave periods which may have as much or greater affect on shorelines as wave height (Macfarlane & Cox, 2007). It is therefore the responsibility of the boat operator to follow speed limits while ensuring vessel wash is kept at a level which minimises adverse impacts.

The Swan and Canning Rivers Foreshore Assessment and Management Strategy identifies priority sites for implementation of low wash zones.

2.4.2 Recommendations

The Trust understands that while some foreshore areas are sensitive to boat wash, which will always exist to some extent, it is important to consider the provision of physical structures (i.e. batter boards) which reduce impacts where practicable. Projects need to be assessed on a case-by-case basis with consideration to maintaining public access for recreation.

Due to the difficulty of enforcing an acceptable boat wash standard, education is vital to managing excessive boat wash. Messages about river health are delivered to the boating community where possible, such as via club newsletters. Through these messages the boating community is encouraged to participate in voluntary works to protect the rivers.

The Trust will continue to liaise with DPI to ensure commercial operators minimise wash in high traffic and environmentally sensitive areas. Liaison with the boating industry regarding wash minimising technologies (with particular focus on large charter vessels) is also a priority.

Recommendation 4.1

Enhance enforcement of speed zones (in particular low speed zones) in the Riverpark.

Recommendation 4.2

Establish 'low wash' zones and install signage in areas with significant environmental, public safety or property risks.

Recommendation 4.3

Continue community awareness and education projects about boat wash.

Recommendation 4.4

Work with commercial operators to reduce boat wash through behaviour change and eventual replacement of existing fleet with river-friendly craft enforced through the new Trust licensing system.

Recommendation 4.5

Investigate wash mitigating devices for sensitive foreshore areas.

Recommendation 4.6

Promote research into wash minimising hull designs.

Recommendation 4.7

Undertake further investigations in 2008-10 to address boat wash impacts. This will inform the River Protection Strategy and associated management programs in implementing appropriate targets, timelines and possible penalties.

2.5 Noise

2.5.1 The issues

Excessive noise generated by some power boats and jet skis can be a nuisance for other user groups. Difficulties in enforcement of acceptable noise levels and coordination of management are facets of boating that require attention. Noise management in the context of community amenity and conflict of use is an understudied area.

Noise may be defined as a sound which is *undesired* by the recipient and therefore the perception of a sound is of crucial importance in assessing potential "noise nuisance". The subjective nature of noise makes it one of the most difficult environmental impacts to quantify. The problem of noise nuisance is compounded by the difference in perception of noise between participants and non-participants and also participants in the *same* activity (UK Centre for Economic and Environmental Development & Bournemouth University, 2000).

Sound generated by recreational boats originates from a number of different sources including:

- craft hull striking or ploughing through waves (hull slap);
- boat-generated waves striking the shore;
- mechanical noise (from engines);
- rigger noise (deck and cabin fittings); and
- people noise (human propulsion or interaction on board).

Certain types of water-based recreation, such as personal watercraft activities, are considered to cause noise nuisance whether recorded sound levels of the activity are high or low relative to other sound sources. This is often because the "quality", or tonal note, of a sound is more important to the listener's perception of that sound than its magnitude. However, this is an entirely subjective concept and is therefore unmeasurable. This creates problems with the assessment of whether a particular sound constitutes a noise nuisance.

Noise is a ubiquitous complaint among beach-goers, waterfront property owners and traditional boaters who express their dislike of the growl of ski boats and high-pitched whine of personal water craft such as jet skis. Noise nuisance may be exacerbated by land use changes such that new high density residential developments may be built next to areas traditionally used by boating activities such as water skiing. Environmental advocates contend that noise generated by these types of boats compromises the integrity of the Riverpark environment by degrading the quality of life, destroying recreational experiences, disturbing birds and wildlife and threatening fish and other marine life such as dolphins.

Ski boat and jet ski advocates, on the other hand, emphasise that technological innovations such as baffles, insulation and resonator-equipped mufflers have significantly reduced the noise they generate and newer models are significantly quieter than older ones. Their claims are backed by studies suggesting that, under analogous operating conditions, ski boats and jet skis are no louder than similar motorised boats and comply with existing noise regulations (European Confederation of Nautical Industries, 2007).

Noise levels in the community are regulated by the *Environmental Protection (Noise) Regulations 1997*. Under these regulations, types of noise, timing of noise and levels of noise are subject to prescribed conditions dependant on the type of activity causing the noise and the type of receiving environment for the noise e.g. a noise-sensitive residential area compared with an industrial area.

The problem of noise from water craft is generally managed by allocating suitable areas of the water for certain activities. This allocation of waterways is managed by DPI Marine Safety Branch.

The following difficulties have been identified related to developing a noise management strategy for an urban riverine environment.

- Mandates for enforcement and management, where there is an interface between land and water, create significant boundary issues among government agencies. Whereas sound waves propagate across land-water interfaces, legislated responsibilities tend not to do so.
- Poor information available on the extent of exposure to river-related noise sources, and while anecdotal evidence was extensive regarding the existence of noise problems, there had been no systematic recording or assessment of its nature or extent (Brown & Richardson, 1998).

2.5.2 Recommendations

The Trust recognises the need to provide opportunities for new recreational activities into the future. However, noise levels from boating activities need to be considered in decision making on authorisation of specific types of activities. Restrictions on the operation for motorised boats will need to be considered for specific areas of the Riverpark through the development of the River Protection Strategy.

Recommendation 5.1

Trust to facilitate discussion between peak management bodies to achieve better, more coordinated management of noise generated by speedboats and jet skis.

Recommendation 5.2

Enforce existing noise regulations as appropriate.

Recommendation 5.3

Education via Recreational Skippers Ticket requirement, peak bodies and ongoing education programs for yacht clubs, sailing clubs and marinas.

Recommendation 5.4

Apply recognised industry standards for noise control apparatus through manufacturing and importing bodies.

2.6 Fuel and oil discharge

2.6.1 The issues

Fuel and oil leakage occurs to some extent across the majority of boat usage. Generally the impact from individual boaters is minimal, however the cumulative impact is of concern and is largely preventable. Even small amounts of fuel or oil in a waterway can be fatal to bird and marine life and cause damage to the environment (Maritime New Zealand, 2007). Diesel and petrol are particularly toxic substances, and lubricant and hydraulic oils can be very harmful. Major fuel and oil spills are of the greatest concern and are managed jointly by DPI, DEC and the Trust.

The Trust attributed 12 fuel/oil spills on the rivers to boats in 2006-07. In 2007-08 Trust officers responded to 26 incidents involving fuel and oil slicks. Three required clean up actions and one involved 250 litres of diesel being spilt in a yacht club lease area. Unconfirmed and unreported spills would increase these tallies. Most spills are of light oil, which spreads out into a thin film across the water surface, covering a large surface area. This oily film is toxic, smells bad, fouls other boats and contaminates shellfish (Maritime New Zealand, 2007).

Most small spills result from careless refuelling, maintenance activities or pumping oily bilge water overboard, either manually or via the operation of an automatic bilge pump. Operating with due care and caution would prevent such spills. All new marine engines must comply with an international emission standard which is endorsed by the boating industry.

2.6.2 Recommendations

Enforcement action in relation to minor fuel and oil spills from small pleasure craft is difficult under existing legislation and it is unlikely that offenders will be easily identified. Therefore, education to prevent spills is the most feasible strategy for small boat owners. This should involve advice to ensure that motors are regularly maintained and oil-absorbent products are kept onboard at all times.

The use of bilge discharge filtration systems, bilge socks, pillows and absorbent pads which remove fuel and oil from the bilge of a vessel is highly recommended by the Trust as an affordable and responsible method of managing minor leaks and spills in a vessel. The Trust will work with the boating industry to actively encourage use of these products by the recreational boating community in existing vessels. Additionally, the Trust supports the boating industry's endorsement of an international emissions standard which must be met by new marine engines. The use of oily water separators in boat bilges is an effective way of ensuring oil does not enter the environment, however the mandatory retrofitting of these devices to existing craft may not be feasible on a broad scale. Therefore, it is important the boating industry investigates the potential for new vessels to be fitted with such devices.

The Trust has developed an Environmental Management System (EMS) template for yacht clubs and marinas to encourage the responsible management of fuel and oil handling. Several clubs and marinas have an EMS in place and all clubs have indicated their support for doing so. Any club or marina that renews a River Reserve lease or applies through the Trust for development of their River Reserve lease will be required to develop an EMS and upgrade facilities if they do not comply to best management practices for pollution prevention standards. EMS requirements include demonstration of how the operators can avoid harmful impacts on waterway and foreshore areas, for example through the installation of facilities to control and minimise oil and fuel spills.

There may be opportunity to install additional fuelling points for the boating public in the Riverpark if sufficient demand can be demonstrated. The Trust is likely to favour such installations in existing facilities where best management practice and proper installation and maintenance can be achieved.

Recommendation 6.1

Require refuelling operators to implement an Environmental Management System to reduce likelihood and impact of fuel spills.

Recommendation 6.2

a) Work with community and partners to achieve behaviour change.
b) Distribute educational information to the boating public on responsible practices and existing public fuelling facilities.

Recommendation 6.3

Encourage the use of oil separators/filters, oliophilic pads or other effective devices in bilges.

Recommendation 6.4

Support compliance of new engines with an international environmental emissions rating standard.

Recommendation 6.5

Continue to audit and improve implementation standards for club and marina environmental management systems.

2.7 Boat launching facilities

2.7.1 The issues

Recreational boaters are experiencing a facilities shortage during peak times (weekends and particularly long weekends), demand for boat launching facilities is high and congestion occurs (Stanton [Swan River Trust, Waterways] 2007 pers. comm).

Arising from this congestion is the increased risk of illegal boat launching at non-designated locations. This practice can have a detrimental effect on riverbank vegetation and can exacerbate erosion of the riverbank. *Swan and Canning Rivers Management Regulations 2007* prohibit the launching of a vessel from a trailer into the Riverpark anywhere other than a permitted launching place. The Trust understands that illegal boat launching is limited to isolated instances of boat launching from private residences and other areas. However, this could increase if the demand is greater than the provision of facilities as recreational boat registrations increase further.

Previous research has found the most heavily used ramp in the Riverpark is Leeuwin ramp at Preston Point, other high use ramps include Deepwater Point, Mosman Park and Bayswater (DoT, 2000). However to date, the general (non-peak) demand for ramps does not seem to outstrip supply of facilities. To reduce pressure on existing ramps, boat 'stackers' with self launching capacity have been proposed. A map of authorised launching sites can be accessed online from the Swan and Canning Rivers Boating Guide at www.swanrivertrust.wa.gov.au.

The availability of nearby parking also constrains access at launch sites. Research commissioned by DPI has revealed the capacity to expand Riverpark facilities is very limited and the development and expansion of ocean-based facilities has far greater potential.

2.7.2 Recommendations

The Trust may consider the expansion of Riverpark launching facilities at strategic locations, but not at the cost of other users of the Riverpark or environment. The Trust also acknowledges local government concerns of ongoing funding requirements for the maintenance of such facilities and agrees that joint funding opportunities should be sought for these costs. Any environmental or social impacts of ramp development or expansions would need to be considered.

The Trust supports the development and expansion of public boat launching facilities along the coast given the greater space available and low level of existing coastal facilities. DPI has begun to address the development of coastal facilities, with the release of the Draft Perth Recreational Boating Facilities Study.

The Trust is unlikely to grant approval for boat stackers unless environmental and amenity issues are adequately addressed, with no increase in alienation of foreshore land.

The Trust will monitor and take enforcement action as resources permit to discourage illegal boat launching.

Recommendation 7.1

Expand and/or upgrade existing priority launching facilities, parking and amenities in the Riverpark where feasible.

Recommendation 7.2

Encourage developing coastal facilities to relieve pressure on the Riverpark.

Recommendation 7.3

Increase compliance enforcement for illegal boat launching.

2.8 Sewage disposal

2.8.1 The issues

Concerns have been raised regarding the dumping of sewage in the Swan Canning Riverpark by boat operators. However, there are very limited opportunities for recreational boaters to dispose of sewage appropriately in the Riverpark. A facility at Barrack Square is available primarily for commercial use, but also public use for a fee. Large-scale public use of this facility is not feasible. South of Perth Yacht Club also provides a pump-out facility for club members.

On 1 October 2004, DPI suggested new sewage discharge guidelines for State Waters in Western Australia. As part of the guidelines, three sewage discharge zones were outlined which applied to all coastal and riverine waters. These zones were based on the risk to public health and the environment (DPI, 2004).

Zone 1 – No discharge
Zone 2 – No discharge except to vessels with approved treatment systems
Zone 3 – Open discharge zone

The Swan Canning Riverpark system is declared 'Zone 1 – No discharge'. Dumping sewage in the rivers is illegal under the *Environmental Protection (Unauthorised Discharge) Regulations 2004* and *Navigable Waters Regulations 1958*.

Marinas, yacht clubs, boat harbours and recreational reserves contribute to minimising sewage by providing toilets ashore.

2.8.2 Recommendations

While public pump-out facilities in the Riverpark are limited[1], the feasibility of developing a public pump-out facility in the Riverpark needs to be carefully assessed. Considerations include: demand for such a facility from recreational boaters; most appropriate location for a pump-out facility; practicality of retro-fitting recreational vessels with sewage storage systems; and enforcement mechanisms for requiring sewage storage units. For vessels under a certain length, sewage storage systems will not be a viable option. To reduce the need for sewage storage on boats, public toilet facilities should be placed near jetties, boat ramps and other Riverpark access points. If a public pump-out facility is considered to be a feasible option, funding for such a facility could be sought through DPI's Recreational Boating Facilities Scheme.

Regardless of whether a public sewage pump-out facility is developed, the Trust believes it is important to educate people about the impacts of dumping sewage in the Riverpark. Boaters should also be reminded that dumping sewage in the Riverpark is illegal.

The Trust believes, notwithstanding existing legislation, the amendment of the *Pollution of Waters by Oil and Noxious Substances Act 1987* to prohibit sewage disposal in the Riverpark would facilitate enforcement of this offence by DPI and the Trust.

Recommendation 8.1

Work with DPI and local government to determine the feasibility and appropriate location for a public pump-out facility in the Perth Metropolitan Region.

Recommendation 8.2

Consult with local government regarding the provision of toilets and other amenities at river entry points.

1 Pump-out facilities available to the public: East Fremantle Yacht Club. Pump-out facilities available to members only: Royal Perth Yacht Club; South of Perth Yacht Club; Swan Yacht Club; Barrack Street Jetty (charters only)

Recommendation 8.3

Work with key stakeholders to continue education of recreational boat users about the importance of appropriate sewage disposal.

Recommendation 8.4

Support DPI's amendment of the *Pollution of Waters by Oil and Noxious Substances Act 1987* to facilitate law enforcement regarding sewage disposal in the Riverpark.

Recommendation 8.5

Encourage yacht clubs and marinas to install pump-out facilities if they do not already have them and make them available to non-club/marina members of the public.

2.9 Jetties

2.9.1 The issues

Jetties provide public, commercial and private access to the Swan Canning Riverpark. The Trust has seen an increase in the number of proposals for jetty and similar developments, which have the potential to create safety hazards and environmental impacts, restrict public access to the Riverpark and alienate public areas.

The Trust is aware of concerns regarding competing interests for access to limited jetty space by commercial and public users. This includes the semi-permanent mooring of vessels at some jetties.

The Trust endorsed the policy *SRT/D21 Jetty Structures in the Swan River Trust Development Control Area* in March 2007. The policy outlines a position of no further private jetty development, and support of public and commercial jetty provision where community benefit can be demonstrated. This is intended to preserve public access to and enjoyment of the Riverpark and minimise environmental disturbance and obstruction of navigation channels.

2.9.2 Recommendations

There has been strong support for the Trust's policy to maximise public access to jetties and the Riverpark. In addition, stakeholders have voiced demand for additional public jetties and public fishing platforms to be developed. It should be noted that this demand is not universal and some community members believe more facilities such as jetties and boat ramps will increase undesireable impacts from boating in some sections of the Riverpark. The feasibility for public jetties and optimal locations is intended to be assessed as part of social research into public demand and satisfaction with boating facilities. The development of additional fishing platforms would need to take into consideration potential environmental impacts, with particular attention to fish population. The development of new public jetties or fishing platforms should also be integrated with other land-based facilities such as car parks, toilets and kiosks.

Equal right of access to the majority of jetties in the Riverpark may be poorly understood by river users. Signage and/or other education and liaison may be appropriate to inform commercial and non-commercial boaters of equal right of access to the majority of jetties. An acceptable time limit for vessels to be tied up needs to be established and the power to move on vessels who overstay may need to be addressed through legislation.

Recommendation 9.1

Uphold the Trust's jetty structures policy SRT/D21 (allowing new public jetties to be developed in high-demand locations) and integrate development with land-based amenities.

Recommendation 9.2

Establish more fishing platforms in high-demand locations, with consideration of community and environmental impacts.

Recommendation 9.3

Develop equitable usage guidelines for public jetties between commercial and private vessels.

Recommendation 9.4

Review existing legislation regarding the ability to remove 'squatters' from public/private jetties - if no adequate legislation exists, work with DPI to amend its *Navigable Waters Regulations 1958* to include such a provision.

2.10 Anchor damage to riverbeds

2.10.1 The issues

Anchoring can cause significant damage to riverbed vegetation in two ways. Dragging the anchor and its chain can tear up riverbed vegetation. Additionally, anchoring in shallow water can result in the propeller and/or hull/keel of the vessel dragging across the riverbed, causing damage over a much greater area. This damage has been noted in several locations in the Riverpark, as evidenced by circular scars on the riverbed viewed from satellite images (internal communication – GIS Viewer file information, 2003).

The most recent seagrass mapping in 1996 indicated *Halophila ovalus* is the dominant species in the Riverpark, however other seagrasses are also present. Previous mapping in 1984 indicated that *H. ovalus* covered about 20 per cent of the riverbed in the lower Swan. However in 1996, the distribution of seagrass had reduced somewhat (Hillman 1984; Phillips & Wilshaw, 1996 – Appendix 2). In 1996, the main beds occurred in the shallow waters of Freshwater Bay, Melville and Lucky Bay, and 90 per cent were found at a depth of 2m below the low water mark. Distribution ended abruptly at the Narrows and Canning bridges. A study associated with the mapping of seagrass in 1984 found *H. ovalus* contributed 15-20 per cent of the food web's primary production, and provided the most important nursery habitat for juvenile fish (Thurlow et al, 1986).

It is believed that boating does not have a significantly adverse impact on seagrass, as the shallow depths of concentrated seagrass areas make these virtually inaccessible to anchoring vessels. However an increase in the number of small power boats anchoring in these shallow areas would cause concern.

2.10.2 Recommendations

While previous mappings of seagrass provides useful information on historic seagrass distribution, up to date information is needed to inform management decisions. Ideally, further research should also include other significant flora species.

The Trust position is that boats should not be anchored in seagrass areas and intends that 'no anchor' zones be designated over significant seagrass areas. Though these areas are mostly too shallow for boating access, the Trust has agreed to investigate the need to install courtesy moorings in the vicinity of these designated zones where existing anchoring or mooring access will be restricted.

The Trust believes it is essential to educate the boating public about the importance of seagrass in the Riverpark and why these areas need protection. An increase in public awareness of this issue will increase support for the proposed measures and help to ensure sustainable boating practices.

Recommendation 10.1

Confirm the existing distribution of seagrass and other aquatic flora in the Swan Canning Riverpark below the low water mark.

Recommendation 10.2

Designate and signpost significant seagrass areas as 'no anchor' zones, recognising emergency access as a priority.

Recommendation 10.3

Install public moorings around no anchor zones where access has been reduced.

Recommendation 10.4

a) Upload information to the Trust website about the significance of seagrass.
b) Seagrass protection information to be distributed widely through Trust publications (brochures, newsletters, signs) as appropriate.

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LEGISLATION

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Swan and Canning Rivers Regulations 2007
Environmental Protection Regulations (1987) s.16
Pollution of Waters by Oil and Noxious Substances Act 1987
Navigable Waters Regulations 1958
Shire of Peppermint Grove (1995) 'Local Government Property Local Law'

ABBREVIATIONS

BIAWA	Boating Industry Association of Western Australia
DEC	Department of Environment and Conservation
DoH	Department of Health
DoT	Department of Transport
DoW	Department of Water
DPI	Department for Planning and Infrastructure
EMS	Environmental Management System
EPA	Environmental Protection Authority
NSW	New South Wales
TBT	tributyltin
Trust	Swan River Trust
WA	Western Australia

ACKNOWLEDGEMENTS

This report was prepared by the Riverpark branch of the Swan River Trust with assistance from the following agencies and groups:

- Boating WA
- Boating Industry Association of WA
- Canning River Regional Environment Protection Association (CRREPA)
- Centre for Marine Science and Technology, Curtin University
- Centre for Ecosystem Management, Edith Cowan University
- Department for Planning and Infrastructure
- Department of Environment and Conservation
- Local government
- Rottnest Island Authority
- School of Plant Biology, University of Western Australia
- Yachting WA

Riverpark would also like to acknowledge the contributions of Trust officers and thank them for their assistance towards the development of this report.

The Trust also acknowledges and appreciates the contributions of stakeholders who have been involved, participated in the discussion forum, or otherwise contributed to the development of this document.

STAKEHOLDERS

Aquarama Marina

Aquatic Council of WA

Ascot Kayak Club

Boating Industry Association of WA

Boating WA

Canning River Regional Environment Protection Association

Canning River Regional Park Volunteers

Canoeing WA

Challenger Tafe

Charter Boat Owners and Operators Association WA

City of Armadale

City of Bayswater

City of Belmont

City of Canning

City of Fremantle

City of Gosnells

City of Melville

City of Nedlands

City of Perth

City of South Perth

City of Subiaco

Claise Brook Catchment Group

Claremont Yacht Club

Conservation Council of WA

Department of Environment and Conservation

Department of Fisheries

Department of Indigenous Affairs

Department of Water

Department for Planning and Infrastructure (Marine)

East Fremantle Yacht Club

Eastern Hills Catchment Group

Ellen-Brockman Integrated Catchment Group

Jet Sport West

Maylands Amateur Boatbuilding Club

Mounts Bay Sailing Club

North Metropolitan Catchment Group

Oceanic Cruises

Perth Flying Squadron Yacht Club

Pier 21 Marina

Power Dinghy Racing Club

Recfishwest

Rottnest Express

Rottnest Island Authority

Rowing WA

Royal Freshwater Bay Yacht Club

Royal Life Saving Society

Royal Perth Yacht Club

Shelley Sailing Club

Shire of Peppermint Grove

South East Regional Centre for Urban Landcare Inc.

South of Perth Yacht Club

Swan Yacht Club

Town of Bassendean

Town of Claremont

Town of East Fremantle

Town of Mosman Park

Town of Victoria Park

Town of Vincent

WA Council of Australian Power Boat Association

WA Rowing Club

WA Swimming Association

WA Water Ski Association

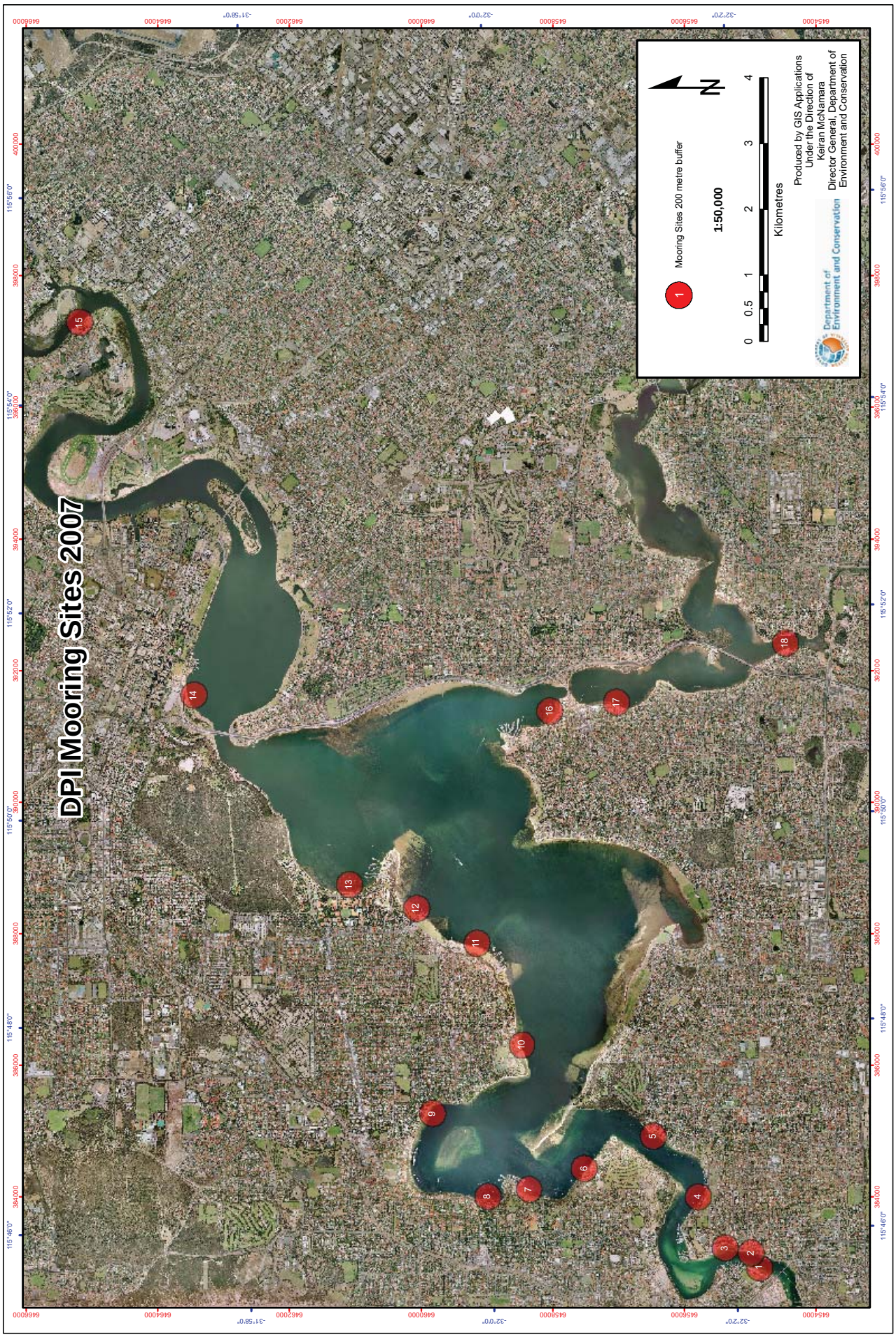
Western Australian Local Government Association

West Australian Speedboat Club

Yachting WA

APPENDICES

Appendix 1 Department for Planning and Infrastructure mooring sites 2007



Appendix 2 Seagrass distribution in the Swan River