

Operational Policy 13:
Recreation within public drinking
water source areas on crown land

June 2019

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water source areas on crown land

Department of Water and Environmental Regulation

Operational policy series

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June 2019

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ISSN 1447-8331 (online)

Acknowledgements

This policy has been prepared by the Water Source Protection Planning team of the Science and Planning directorate of the Department of Water and Environmental Regulation.

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1 Policy

1.1 Preface

Recreation is important to our health and lifestyle, as is safe drinking water – they are both public health priorities. Recreation provides the opportunity for people to obtain social, physical and mental health benefits, and can also provide economic benefit to communities, and local and state government.

In order to benefit both these aspects of public health in areas where they might otherwise be competing priorities, some recreation in public drinking water source areas (PDWSAs) is provided for. This policy describes the types and levels of recreation supported in PDWSAs. Achieving the right balance between drinking water protection and recreation in PDWSAs is a difficult task. This policy represents an appropriate balance to managing all the issues identified through a thorough investigation, a parliamentary inquiry and consultation.

Safe, good quality drinking water is essential for all Western Australians. Drinking water for cities and towns across Western Australia (WA) comes from surface water, groundwater, seawater desalination, and water recycling. Where they provide that for public supply, the surface and groundwater sources are called ‘public drinking water source areas’, and include the catchments of surface water sources (such as dams and reservoirs), the recharge areas of unconfined groundwater sources (superficial bores) and confined groundwater sources (confined and/or ‘artesian’ bores).

Protection of PDWSAs is needed to prevent, minimise or manage contamination risks from any of the land uses in PDWSAs. One of these land uses is recreation. PDWSA protection is important because contaminated drinking water can cause illness, hospitalisation and death, even in developed countries like Australia. There are also economic benefits of protecting PDWSAs, including significant savings in treating and supplying water. If the water is already of a good quality to begin with, very little treatment is needed before it can be supplied as drinking water.

This policy was first published in 2003 as Statewide Policy 13: *Policy and guidelines for recreation within public drinking water source areas on crown land*. In 2012, it was updated to implement the recommendations of a 2010 parliamentary inquiry by the Standing Committee on Public Administration.

The inquiry supported Policy 13 and continued recreation activities in the outer catchments of PDWSAs for existing, approved, land-based activities with lower water quality risks (See Appendix C for more information on the report and government’s response).

Since 2010, 15 PDWSAs that are no longer required for supplying drinking water have been abolished, or had their recreation-based by-laws removed, so they are now available for increased recreation and tourism. Investment in planning and infrastructure will optimise recreation and help accommodate demand for nature-based recreation and tourism experiences in these areas.

This updated policy has been prepared to meet a commitment for a five-year review. It captures important learnings from the implementation of the policy over that period. As well as outcomes from consultation and engagement with stakeholders during the policy review.

1.2 Intent

The intent of this policy is to protect drinking water quality and public health by managing recreation in PDWSAs on crown land.

1.3 Commitment

This policy will help deliver a consistent, equitable and integrated approach to recreation management in PDWSAs on crown land. It will also increase awareness of the public health interaction between water quality protection and recreation.

The public health benefits of recreation are substantially achieved in suitable locations outside PDWSAs. Some land-based recreation is supported in the outer catchments of PDWSAs as described in this policy.

This policy will:

- ensure drinking water quality protection is given the highest regard in PDWSA management decisions to protect public health
- manage water quality contamination risks in PDWSAs
- provide a balance between water quality protection and recreation
- avoid costly additional water treatment
- protect dams that store high quality and valuable desalination water
- recommend that new and enhanced recreation is located outside of PDWSAs
- allow existing, approved recreation facilities to be maintained at September 2012 levels, noting that these facilities can be upgraded provided their capacity and designated use remains the same (upgrades may be for environmental, amenity, public safety or public health reasons)
- allow existing, approved types and levels of land-based recreation and events to continue in the outer catchments of PDWSAs as at September 2012 levels
- prohibit recreation in reservoir protection zones consistent with legislation and policy, except for public roads and the existing, approved Munda Bididi Trail and Bibbulmun Track
- recognise that the number of individuals undertaking recreation activities in the outer catchment of PDWSAs is likely to increase due to population growth and that this does not mean that new or enhanced facilities or events should be developed in PDWSAs.

1.4 Recreation management

In the context of this policy, recreation management includes the following activities:

- communication of the location and definition of reservoir protection zones and the outer catchment areas of PDWSAs
- assessment of existing approved recreation events and facilities as at September 2012 levels
- assessment of proposed recreation events and facilities
- implementation of contemporary approaches to managing existing facilities, events and activities to minimise water quality impacts
- delivering education
- undertaking compliance
- developing recreation opportunities outside PDWSAs.

2 Implementation

Implementation of this policy is aimed at ensuring a consistent, equitable and integrated approach to recreation management in PDWSAs on crown land.

2.1 Application

This policy applies within PDWSAs on crown land in WA that are constituted (or are proposed to be constituted) by government under the *Metropolitan Water Supply Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947*.

PDWSAs are constituted over several crown land tenures, including national park, state forest, unallocated crown land and vested crown reserve. PDWSAs are managed alongside land tenure.

This policy should be read in conjunction with relevant drinking water source protection reports prepared by the Department of Water and Environmental Regulation (DWER) for each PDWSA. For copies of these reports, please visit www.dwer.wa.gov.au or contact us at drinkingwater@dwer.wa.gov.au.

Policy 13 applies to crown land in all PDWSAs, unless a drinking water source protection report specifically recommends an alternative outcome for recreation. Source protection reports published before 2012 will be considered alongside the current Policy 13.

In this policy, the term 'recreation' refers to a wide range of leisure, pastime or entertainment pursuits, including bushwalking, orienteering, swimming, boating, fishing, camping, horse-riding and four-wheel driving. It also includes group outings and commercial activities such as camel trails, llama walks and car rallies.

In this policy, the term 'recreation facility' refers to a built installation, building or form that provides a particular service to enable a recreation activity including camp sites, car parks, food and drink services, toilets, tracks and trails, and includes built or temporary modifications. It excludes a vehicle or pop-up tent required for occupational health and safety and first aid purposes, which distributes basic supplies (such as water, snacks or first aid) or is a checkpoint for contestants. However, if it is a vehicle or pop-up tent that supplies meals, merchandise or alcohol, or provides a recreation function, then this policy considers it to be a 'recreation facility'.

This policy should be used by:

- state and local governments responsible for promoting or approving recreation activities within PDWSAs
- groups, associations or individuals that plan, organise or participate in recreation activities within PDWSAs.

The Department of Biodiversity, Conservation and Attractions' (DBCA) Corporate policy statement 18: *Recreation, tourism and visitor services* (2017) applies to all lands and waters managed by DBCA, some of which overlap with PDWSAs. Policy statement 18 is available at www.dbca.wa.gov.au. It outlines the underlying principles and administrative controls relating to the provision, planning and management of recreation, tourism and visitor services.

The Parliamentary Committee's Report 11 stated that much of Policy 13 is consistent with Policy statement 18. The integration of the two policies is described in Table 1.

Table 1: Integration of Policy 13 and Policy statement 18

	Department of Water and Environmental Regulation Policy 13	Department of Biodiversity, Conservation and Attractions Policy statement 18
PDWSA – reservoir protection zone*	No recreation in reservoir protection zone	See Policy 13
PDWSA – outer catchment*	See Policy 13 for supported recreation	Policy statement 18 should be applied to the extent it does not conflict with Policy 13
Other dams and catchments (not PDWSAs)	See Policy statement 18 (Policy 13 does not apply)	See Policy statement 18

* See Appendix A1 for an explanation of reservoir protection zone and outer catchment.

2.2 Interagency Collaborative Working Group

Since 2012, agencies have worked collaboratively to implement this policy across WA. An important component of this is the Interagency Collaborative Working Group (IACWG), comprised of representatives from Water Corporation and the departments of Health; Local Government, Sport and Cultural Industries; Water and Environmental Regulation; and Biodiversity, Conservation and Attractions.

The IACWG employs a whole-of-government approach and a collaborative and adaptive process to plan and manage recreation within PDWSAs and in recreation dams, while complying with national and state drinking water quality management guidelines and policies. This approach delivers a balance between the social, economic and public health benefits from appropriate recreation and a safe, lower cost drinking water supply.

Recreation issues within and outside of PDWSAs can be referred to the IACWG for discussion and strategic whole-of-government recommendations.

The IACWG recognises that recreation in the Perth Hills has a long history. Due to its proximity to the growing population of the Perth metropolitan area, the hills continue to be the focus of increasing pressure for recreation activities. These issues will continue to be considered by the IACWG.

A 2017, map that shows catchments and recreation facilities within and outside of PDWSAs from the Perth Hills to the South West was a collaborative achievement of the IACWG. It is available online at www.dwer.wa.gov.au or by contacting the department.

The IACWG continues to implement the government's response to the Parliamentary Committee's recommendations in Report 11 (see Appendix C). This included the abolition or the removal of recreation-based by-laws from 15 PDWSAs. While some of these catchments may not yet have well developed recreation facilities, these areas should be considered for new facilities and events. In two of these, government has already improved recreation facilities and increased capacity. Over \$4 million was spent in the Wellington Dam Catchment Area and about \$5.5 million was spent in the Murray River Water Reserve on upgrades in Lane Poole Reserve. Recreation facilities have also been developed in other areas close by, such as in Logue Brook Dam where approximately \$3.3 million has been spent.

The Parliamentary Committee recommended the continuation of a collaborative approach, and investigations to identify appropriate dams and catchments suitable for irrigation and recreation purposes. This work is an ongoing priority for the IACWG.

2.3 Recreation compatibility table

The recreation compatibility table (Table 2) describes recreation activities that are accepted in PDWSAs for individuals and for groups of less than 25 that are not organised recreation events.

Activities identified as 'supported' are appropriate for individuals (and for groups of less than 25 that are not organised recreation events) to undertake and further approval is not required (unless the activity is proposed as an event or facility).

Even if the recreation type is 'supported' in Table 2, there are additional considerations for a recreation event or to build a recreation facility (see section 2.5 and Table 4).

The recreation compatibility table has been developed on the basis that:

- 'recreation types' currently approved in outer catchments can continue
- 'recreation types' in this compatibility table are subject to review
- new recreation is expected to be located outside PDWSAs.
- proposals for recreation events and facilities also need to consider section 2.5 and Table 4.

Table 2 was first developed in 2003 and updated in 2012 and 2018.

Table 2: Compatibility of recreation activities for individuals (or groups less than 25)

This table does not apply to proposed events or facilities. When making an application to hold an event or build a facility please see section 2.5 and Table 4.

Recreation type	Public drinking water source area location (refer to figures A1 and A2 in Appendix A)			
	Surface water – Reservoir protection zone	Surface water – Outer catchment	Groundwater – Wellhead protection zone	Groundwater – Outer catchment
Vehicular activities				
Caravanning at approved designated sites	Incompatible	Supported at designated sites	Incompatible	Supported at designated sites
Caravanning (off-road)	Incompatible	Incompatible	Incompatible	Incompatible
Coach tours / scenic driving	Incompatible (except on public roads ¹)	Supported	Supported	Supported
Off-road driving - all motorised vehicles (including four wheel drive vehicles, motor bikes, trail bikes and quad bikes) whether licensed or unlicensed	Incompatible	Incompatible (except at legally designated sites)	Incompatible (except at legally designated sites)	Incompatible (except at legally designated sites)
Rallying	Incompatible	Incompatible	Incompatible	Incompatible

Recreation type	Public drinking water source area location (refer to figures A1 and A2 in Appendix A)			
	Surface water – Reservoir protection zone	Surface water – Outer catchment	Groundwater – Wellhead protection zone	Groundwater – Outer catchment
Paragliding / gliding - motorised or non-motorised	Incompatible	Incompatible	Incompatible	Incompatible
Land-based activities				
Abseiling / rock climbing	Incompatible	Supported	Supported	Supported
Barbequing	Incompatible	Supported at designated sites	Supported at designated sites	Supported at designated sites
Bike riding / power-assisted pedal cycling ³ on public roads ¹	Supported	Supported	Supported	Supported
Bike riding / power-assisted pedal cycling ³ within approved designated sites - trails, tracks or areas	Incompatible (except on the Munda Biddi Trail)	Supported in designated sites	Supported in designated sites	Supported in designated sites
Bike riding / power-assisted pedal cycling ³ (free range / off-trail)	Incompatible	Incompatible	Incompatible	Incompatible
Bush skills / navigational exercises	Incompatible	Supported	Supported	Supported
Bushwalking / trekking / hiking / trail running at approved designated sites - trails, tracks or areas	Incompatible (except on the Bibbulmun Track or Munda Biddi Trail)	Supported	Supported	Supported
Bushwalking / trekking / hiking (free range / off-trail)	Incompatible	Supported	Supported	Supported

Recreation type	Public drinking water source area location (refer to figures A1 and A2 in Appendix A)			
	Surface water – Reservoir protection zone	Surface water – Outer catchment	Groundwater – Wellhead protection zone	Groundwater – Outer catchment
Camping at approved designated sites	Incompatible	Supported at designated sites	Incompatible	Supported at designated sites
Camping (free-range)	Incompatible	Incompatible	Incompatible	Incompatible
Drone flying (electric)	Incompatible (except on public roads ¹)	Supported	Supported	Supported
Orienteering / rogaining / geo-caching / cross country running	Incompatible	Supported*	Supported*	Supported*
Photography / painting / sightseeing / birdwatching / astronomy	Incompatible (except on public roads ¹)	Supported	Supported	Supported
Picnicking	Incompatible	Supported	Supported	Supported
Prospecting	Incompatible	Supported	Supported	Supported
Riding / walking / training of animals (including dogs and horses)	Incompatible	Incompatible	Incompatible	Incompatible
Riding / walking / training of animals on public roads ¹ and on approved designated sites - trails, tracks or areas (including dogs and horses)	Supported on public roads ¹ and at designated sites	Supported on public roads ¹ and at designated sites	Supported on public roads ¹ and at designated sites	Supported on public roads ¹ and at designated sites
Hunting / shooting	Incompatible	Incompatible	Incompatible	Incompatible

Recreation type	Public drinking water source area location (refer to figures A1 and A2 in Appendix A)			
	Surface water – Reservoir protection zone	Surface water – Outer catchment	Groundwater – Wellhead protection zone	Groundwater – Outer catchment
Introduction of game animals	Incompatible	Incompatible	Incompatible	Incompatible
Water-based activities				
Boating (motorised) Jet skiing / water skiing / power boating (fuel and low powered electric)	Incompatible	Incompatible	Incompatible	Supported ⁴
Boating (non-motorised) Canoeing / kayaks / buoyancy devices / rowing / sailing / model boating/ windsurfing / kite surfing	Incompatible	Incompatible	Incompatible	Supported ⁴
Fishing	Incompatible	Incompatible ²	Incompatible	Supported ⁴
Introduction of fish / aquatic species	Incompatible	Incompatible	Incompatible	Supported ⁴
Marroning	Incompatible	Incompatible	Incompatible	Supported ⁴
Swimming / wading / bathing / scuba diving / snorkelling (all activities that involve direct human contact with water)	Incompatible	Incompatible	Incompatible	Supported ⁴

¹ 'Public roads' does not include tracks or trails for the purposes of fire control, mining, forestry or infrastructure access/maintenance. Please see full definition of 'public roads' in the glossary.

² Fishing was an existing, approved activity as at September 2012 at Big Brook Dam in the Lefroy Brook Catchment Area.

³ Power-assisted pedal cycles (PAPC) must meet Department of Transport legislation requirements to be ridden on a shared path. Please see the definition of a PAPC in the glossary.

⁴ Supported in water bodies that occur in the outer catchment of groundwater based public drinking water source areas.

2.5 Recreation proposals

Organised recreation groups of more than 25 people must be under the control of a person or organisation. Recreation events and facilities proposed on crown land that meet this criteria require approval from the land manager. This is usually DBCA, local government or the Department of Planning, Lands and Heritage (DPLH) and within PDWSAs it is also the DWER and/or the Water Corporation. Where recreation is proposed on unallocated crown land or an unmanaged reserve, a licence may also be required from DPLH.

Recreation proponents must:

- Ensure that event participants or people constructing facilities are provided with information about water quality protection. This material should be submitted to the Water Corporation and DWER as part of the approvals (please see an example of education material at Appendix E).
- Understand that they may be subject to permits/approvals.
- Be aware that a recreation management plan for the protection of water quality may be required (see section 2.7).
- Note that during extreme or catastrophic weather events and bushfire risk, events or construction of a facility may need to be cancelled.
- Not bring any animals into a PDWSA unless specific approval has been given.

Community and other groups who owe a duty of care to the participants carrying out the activity may be required to demonstrate they have public risk insurance.

DWER is developing an interactive mapping tool that will enable recreators to locate themselves relative to PDWSA boundaries and protection zones. It can be used in recreation planning or to ensure individuals do not accidentally enter a protection zone. This mapping tool will be available online at www.dwer.wa.gov.au or by contacting us.

Links to contact details, recreation application forms and mapping tools are shown in Table 5: *Contact details for relevant recreation and land managers and online resources*.

2.5.1 Existing events and facilities

The intent of this policy is to maintain but not exceed recreation at September 2012 levels. This date is when Policy 13 was updated to implement government's response to the Parliamentary Committee's Report 11, which recommended no increase in recreation in PDWSAs.

To practically implement this intent, we need to limit the number of recreation events and facilities within PDWSA at 2012 levels, and not increase their capacity, occurrence or designated use.

'Existing' recreation is defined as events and facilities that were approved as at September 2012. To continue to be considered as 'existing', events and facilities can be maintained and upgraded but their capacity and designated use cannot be increased. The event or facility must be defined in a state government plan endorsed by the relevant land manager to show approval prior to September 2012. However, there is flexibility to be able to accept recreation that can be demonstrated to be existing approved as at September 2012 through other state government documentation and evidence. These proposals will be assessed on their merits.

We recognise that, over time, the number of individuals undertaking recreation activities in the outer catchments of PDWSAs is likely to increase due to population growth. However, while limited growth can be accommodated by existing facilities it does not mean that new or enhanced events or facilities should be developed in PDWSAs to meet this demand. There are many sites available for recreation outside PDWSAs.

2.5.2 New events and facilities

New recreation events and facilities such as roads, tracks, trails, picnic areas and toilets should be developed outside PDWSAs to attract and accommodate increasing recreation numbers in appropriate locations.

Any proposed enhancement of existing events and facilities in a PDWSA that results in an increase in capacity will be considered a 'new' event or facility and will be assessed as such.

Proposed events and facilities that were not existing and approved as at September 2012 will be assessed on a case-by-case basis. We encourage proponents to have early discussions with us and the Water Corporation prior to preparing an application.

Please refer to Table 4: *Recreation proposal assessment procedure* for more information on recreation proposals.

2.5.3 Periodic, rotational and historical events

Periodic or rotational events can be considered to be 'existing' if sufficient information is provided in their application to show that they were regularly occurring in PDWSAs prior to September 2012.

Rotational events require variation in location (for orienteering or rogaining familiar settings are detrimental to the activity). These events are supported to continue to rotate location within PDWSAs provided they do not increase in number of events or capacity from September 2012 levels.

Periodic events are held at regular intervals and to be considered 'existing', evidence needs to be provided that the events were approved to occur on a regular basis within PDWSA (more than three times), at any consistent interval prior to September 2012 (such as every five years, bi-annually).

Events that have not been held consistently within PDWSAs (less than three times) at set intervals will be considered 'historic' not 'existing' events. Proponents can

provide evidence to support assessment as an 'existing approved event', or can apply as a 'new event'. Please see Table 4 for more information.

2.5.4 Application on roads

This policy does not apply to 'sealed bitumen roads' and their road reserves outside of reservoir protection zones (see definition of 'sealed bitumen road' in the glossary). This is because recreation undertaken on sealed roads is generally a lower risk and the recreation application system for events and facilities on these roads does not require approval from the surrounding crown land manager.

However, if a recreation event or facility (including parts or sections of events or facilities, such as parking or spectator areas) is proposed outside the sealed bitumen road or road reserve boundary (on the adjacent crown land), this policy does apply and an application is required (see section 2.6 and Table 4).

This policy also applies to 'public roads' that are not 'sealed bitumen roads' within PDWSAs, for example unsealed or gravel roads.

This policy defines 'public roads' as cleared and graded roads (with a gravel or bitumen/cement surface), that are subject to regular maintenance. This does not include tracks or trails for the purposes of fire control, mining, forestry or infrastructure access/maintenance because public access may not be allowed on these roads.

Please note that government agencies may vary in how they define 'public roads' and how they manage them, however within PDWSAs the Policy 13 definition and guidance for 'public roads' is applicable.

Signs or barriers (such as gates) can limit or prohibit access on any roads (including 'public roads' or 'sealed bitumen roads'). Where these signs or barriers exist, that road is no longer considered to be available for public use.

Car rallies require assessment under Policy 13, even if they occur on a sealed bitumen road. Existing, approved car rallies within PDWSAs can continue at 2012 levels, however, new car rallies are not supported.

Table 3: How does Policy 13 apply to different types of roads in PDWSAs

	How does Policy 13 apply on this road for events (> 25 people) or facilities?	How does Policy 13 apply on this road to individuals undertaking recreation activities?
Sealed bitumen roads and their road reserves	Policy 13 only applies to car rallies or within reservoir protection zones	Policy 13 does not apply.
'Public road' as defined by Policy 13	See Policy 13, section 2.6 Recreation proposal assessment procedure	See Policy 13, Table 2 for supported activities

2.5.5 Recreation area

Recreation facilities may be considered as an area rather than as an individual track or trail. A 'recreation area' recognises where facilities occur together within a localised area (such as where many tracks and trails occur in proximity) if how they are currently managed (or should best be managed) is as one area. This will be subject to an IACWG case-by-case assessment.

These areas must be defined in a state government management plan (such as a gazetted off-road driving area). However, there is flexibility to be able to accept proposed 'recreation areas' that can demonstrate existing approvals through other state government documentation and evidence.

Policy 13 still applies to 'recreation areas'. A 'recreation area' should not result in an increase of recreation levels or types or expand recreation facilities within PDWSAs.

2.6 Recreation proposal assessment procedure

There is a well-established IACWG procedure for assessing recreation events under Policy 13. It provides special recognition for the existing approved Munda Bididi Trail and Bibbulmun Track. It has now been updated to also include the assessment of 'new recreation facilities' and has been included in Table 4 of this policy.

In 2017, three new guidelines were developed and supported by the IACWG to implement this policy and to recognise the lower risks of recreation in the outer catchment of groundwater sources. These guidelines were based on four years of implementing the 2012 Policy 13. The guidelines do not apply to groundwater sources at high risk of contamination (such as a sole supply for a town and fractured, karstic or shallow aquifers). These guidelines have now been included in Table 4 of this policy.

Table 4: Recreation (events and facilities) proposal assessment procedure

Table 4 has been summarised into two procedure flowcharts in the following pages. One flowchart refers to the assessment of event proposals and the other refers to facility proposals. It is important to refer back to Table 4 when reading these flowcharts.

No.	Proposal	Assessment and approval
1	Proposals (events and facilities) outside PDWSAs	<ul style="list-style-type: none"> • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied. • In order to reduce water quality contamination risks for current and future generations, Policy 13 recommends new recreation proposals should occur outside PDWSAs.
2	All proposals (events and facilities) within PDWSAs	<p>All recreation proposals for events or facilities within PDWSA must:</p> <ul style="list-style-type: none"> • Allow sufficient time for proposals to be assessed. Three months is recommended but more may be required if your proposal is not consistent with Policy 13. • Provide a report to show that alternative sites outside PDWSAs have been fully considered and have been found unavailable or unsuitable prior to considering a new proposal in a PDWSA. All proposals will be subject to a detailed assessment. • Employ best practice water quality protection measures (such as specified within Appendix E) to ensure the ongoing availability of a safe, reliable, lower cost, good quality drinking water supply to consumers now and in the future. • Incorporate drinking water education and awareness initiatives in event material or facility construction planning. These materials should be provided to the agency assessing the application. An example of education and awareness material is provided at Appendix E. • Complete and submit the DWER recreation application form to the appropriate land manager. • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied. Community and other groups who owe a duty of care to the participants carrying out the activity may be required to demonstrate they have public risk insurance.

No.	Proposal	Assessment and approval
3	<p><i>Existing events or facilities</i> approved before September 2012</p>	<ul style="list-style-type: none"> • The proposal will need to be submitted to the appropriate land manager for assessment (refer to Table 5 for contact details). The land manager will consult the DWER or its delegated agent on the proposal. • DWER is normally not involved in this process because it has delegated some of its roles to the Water Corporation for many PDWSA. The department can become involved on request. For example, where clarification on policy interpretation is required. • ‘Existing’ events and facilities are defined as ‘existing, approved as at September 2012’. To continue to be considered ‘existing’, recreation events or facilities can be maintained or upgraded but their capacity or number of participants should not be increased. It must be defined in a state government plan endorsed by the relevant land manager to show approval prior to September 2012. However, there is flexibility to be able to accept recreation that can be demonstrated to be existing approved as at September 2012 through other state government documentation and evidence. These cases will be assessed on their merits. • ‘Existing events’ can include events shown to be ‘periodic’ or ‘rotational’ events. See definitions of ‘periodic’ or ‘rotational’ in the Glossary and section 2.5.3. • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied.

No.	Proposal	Assessment and approval
4	<p><i>New events or facilities in <u>surface water</u> PDWSAs</i></p> <p>Proposed in the outer catchment (see Appendix A, Figure A1)</p>	<ul style="list-style-type: none"> • Prior to considering a new proposal, the applicant must provide a report to show that alternative sites outside PDWSAs have been fully considered and have been found unavailable or unsuitable. If there are no suitable sites or facilities outside PDWSAs, the new proposal will be subject to a detailed assessment. • The land manager will consult the DWER (or its delegated agent) on the proposal. The proposal will be assessed to determine if it can be supported. The Minister for Water will need to note any proposals that are recommended to be supported and why. • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied. • Annual events may be supported by the Minister for Water as ongoing new events rather than as a once-off each year (provided that the reasoning for its support remains unchanged, as do the event details, such as participants, timing, location and facilities). These events will still need to submit a new application annually but will not need noting by the Minister every year.
5	<p><i>New events or facilities in <u>groundwater</u> PDWSAs</i></p> <p>Proposed in the outer catchment (see Appendix A, Figure A2)</p>	<ul style="list-style-type: none"> • Recognition of lower risks in groundwater PDWSAs is considered in the assessment. The assessment will need to consider special circumstances including high risk situations (such as sole water supplies for a town or sources vulnerable to contamination (such as karstic formations, fractured rock, unconfined aquifers and shallow bore fields). In these situations, the proposal is unlikely to be supported. • The land manager will consult the DWER (or its delegated agent) on the proposal. The proposal will be assessed to determine if it can be supported. The Minister for Water will need to note any proposals recommended to be supported and why. • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied. • Annual events may be supported by the Minister for Water as ongoing new events rather than being noted each year (provided that the reasoning for its support remains unchanged, as do the event details, such as participants, timing, location and facilities). These events will still need to submit a new application annually to get approval but will not need noting by the Minister every year.

No.	Proposal	Assessment and approval
6	<p><i>New events within capacity on the Munda Biddi Trail or Bibbulmun Track</i></p> <p>(no additional facilities required in PDWSAs)</p>	<ul style="list-style-type: none"> • Special recognition and support is provided for events using these two existing approved high priority recreation facilities. • Track or trail capacity is determined by the trail/track and land manager/s. The land manager seeks input and comments from the relevant track or trail foundation for proposals on the Munda Biddi or Bibbulmun and considers their advice in the assessment procedure. • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied. • Facilities are defined as a built installation, building or form that provides a particular service to enable a recreation activity including camp sites, car parks, food and drink services, toilets, tracks and trails, and includes built or temporary modifications. It excludes a vehicle or pop-up tent required for occupational health and safety and first aid purposes, which distributes basic supplies (such as water, snacks or first aid) or is a checkpoint for contestants. However, if it is a vehicle or pop-up tent that supplies meals, merchandise or alcohol, or provides a recreation function, then this policy considers it to be a 'recreation facility'. • Parts of the track or trail that existed within reservoir protection zones as at September 2012 can remain. Relocation outside of the protection zone is encouraged if opportunities arise (such as, rebuilding facilities after a fire). • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied.

No.	Proposal	Assessment and approval
7	<p><i>New events that exceed capacity on the Munda Biddi Trail or Bibbulmun Track</i> (additional facilities required in PDWSAs)</p>	<ul style="list-style-type: none"> • Prior to consideration of a new proposal, the applicant must provide a report to show that alternative sites outside PDWSA have been fully considered and have been found unavailable or unsuitable. If there are no suitable sites or facilities outside PDWSA, the new recreation proposal will be subject to a detailed assessment. • The land manager will consult the DWER (or its delegated agent) on the proposal. The proposal will be assessed to determine if it can be supported. The Minister for Water will need to note the reasons for any proposals recommended to be supported. • Facilities are defined as a built installation, building or form that provides a particular service to enable a recreation activity including camp sites, car parks, food and drink services, toilets, tracks and trails, and includes built or temporary modifications. It excludes a vehicle or pop-up tent required for occupational health and safety and first aid purposes, which distributes basic supplies (such as water, snacks or first aid) or is a checkpoint for contestants. However, if it is a vehicle or pop-up tent that supplies meals, merchandise or alcohol, or provides a recreation function, then this policy considers it to be a 'recreation facility'. • Track or trail capacity is determined by the trail/track and land manager/s. The land manager seeks input and comments from the relevant track or trail foundation for proposals on the Munda Biddi or Bibbulmun and considers their advice in the assessment procedure. Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied. • Annual events may be supported by the Minister for Water as ongoing new events rather than being noted each year (provided that the reasoning for its support remains unchanged, as do the event details such as participants, timing, location and facilities). These events will still need to submit a new application annually to get approval but will not need noting by the Minister every year.

No.	Proposal	Assessment and approval
8	<p>New events or facilities that are <i>consistent with strategic state government planning</i></p>	<ul style="list-style-type: none"> • Recognition will be given to strategic-level recreation planning reports prepared or endorsed by state government. Proposals that occur within areas covered by such reports will be assessed with due regard to the recommendations in the report. • Prior to consideration of a new proposal, the applicant must provide a report to show that alternative sites outside PDWSA have been fully considered and have been found unavailable or unsuitable. • The land manager will consult the DWER (or its delegated agent) on the proposal. The proposal will be assessed to determine if it can be supported. The Minister for Water will need to note any proposals recommended to be supported and why. • It is recognised that some recreation planning (such as activity management plans) is led by non-government bodies or local government, and although state government agencies may provide input to those reports, that does not mean that all the recommendations are supported by all government agencies. Such support needs to be checked with the relevant agencies and confirmed in writing. • Assessments should be undertaken as part of strategic-level recreation planning. Ongoing input from the IACWG will be needed. • Annual events may be supported by the Minister for Water as ongoing new events rather than being noted each year (provided that the reasoning for its support remains unchanged, as do the event details, such as participants, timing, location and facilities). These events will still need to submit a new application annually to get approval but will not need noting by the Minister every year. • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied.

No.	Proposal	Assessment and approval
9	<p>New events or facilities outside reservoir protection zones on 'sealed bitumen roads' with no additional facilities in PDWSAs</p>	<ul style="list-style-type: none"> • Outside of reservoir protection zones, this policy does not apply to 'sealed bitumen roads' and their reserves (see glossary or section 2.5.4 for definition of 'sealed bitumen roads'). This is because the recreation application system for events and facilities on these roads does not require approval from the surrounding crown land manager. • Where a recreation event or facility (including parts or sections of events or facilities, such as parking or spectator areas) is proposed outside the sealed bitumen road or road reserve boundary (on the adjacent crown land), this policy does apply and an application is required. • A sealed bitumen road must also be defined by proclamation and included as a sealed road on the Main Roads WA Road Information Mapping System. These roads are available for public viewing on the Main Roads WA Road Information Mapping System under Road Hierarchy available online at www.mainroads.wa.gov.au. • This policy also applies to 'public roads' that are not on the Main Roads WA Road Information Mapping System Road Hierarchy within PDWSAs. This policy defines 'public roads' as cleared and graded roads (with a gravel or bitumen/cement surface), that are subject to regular maintenance. 'Public roads' do not include tracks or trails for the purposes of fire control, mining, forestry or infrastructure access/maintenance because public access may not be allowed on these roads. • Signs or barriers (such as gates) can limit or prohibit access on any roads. Where these signs or barriers exist, that road is no longer considered to be available for public use. • Car rallies always require assessment under Policy 13. Existing, approved car rallies within PDWSAs can continue at 2012 levels, however, new car rallies are not supported. • Approval is subject to other government legislation, policy and approval. If approved, conditions may be applied.

Figure 1: Recreation facilities assessment procedure flowchart (see Table 4 for further explanation)

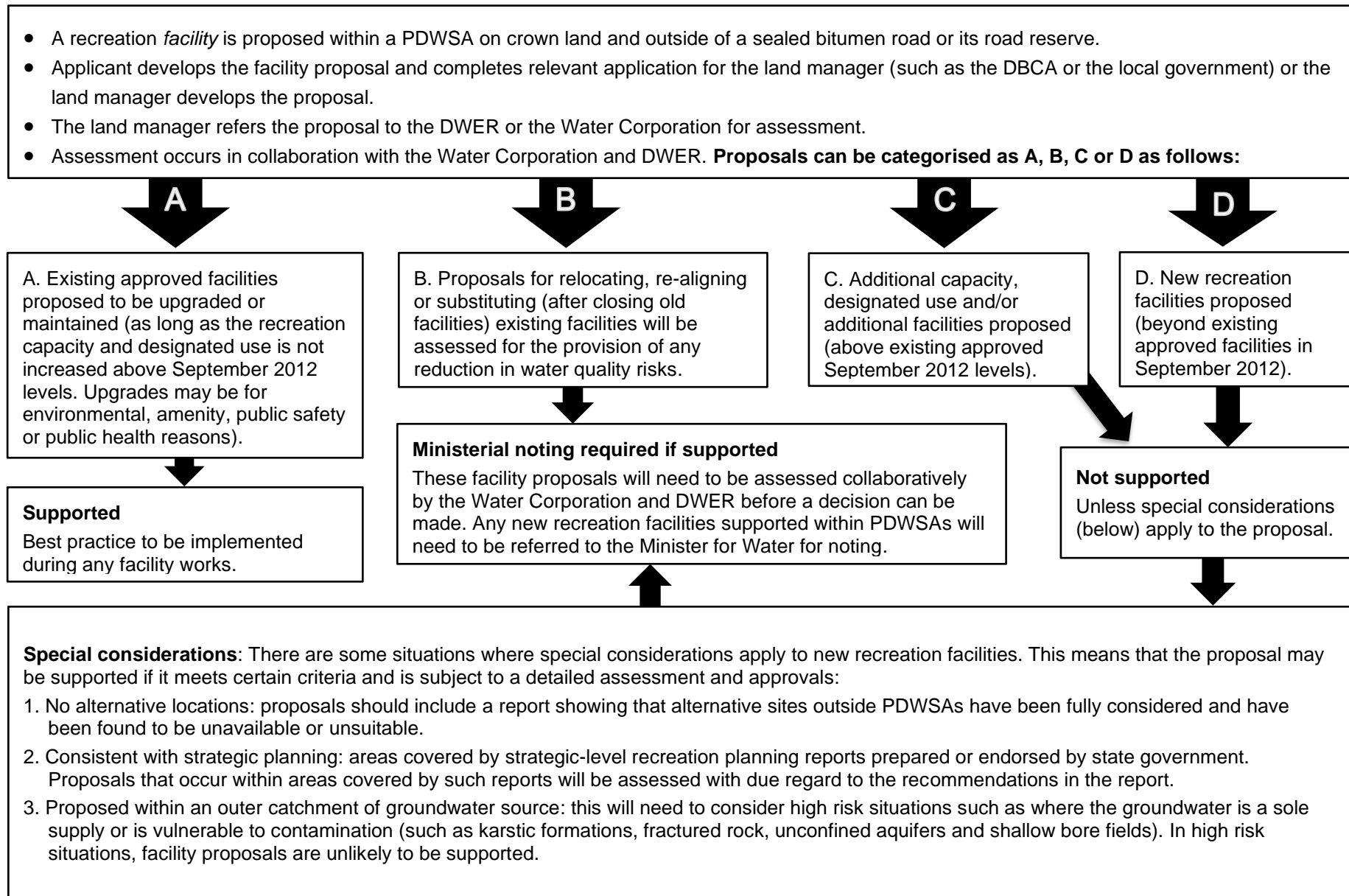


Figure 2: Recreation events assessment procedure flowchart (see Table 4 for further explanation)

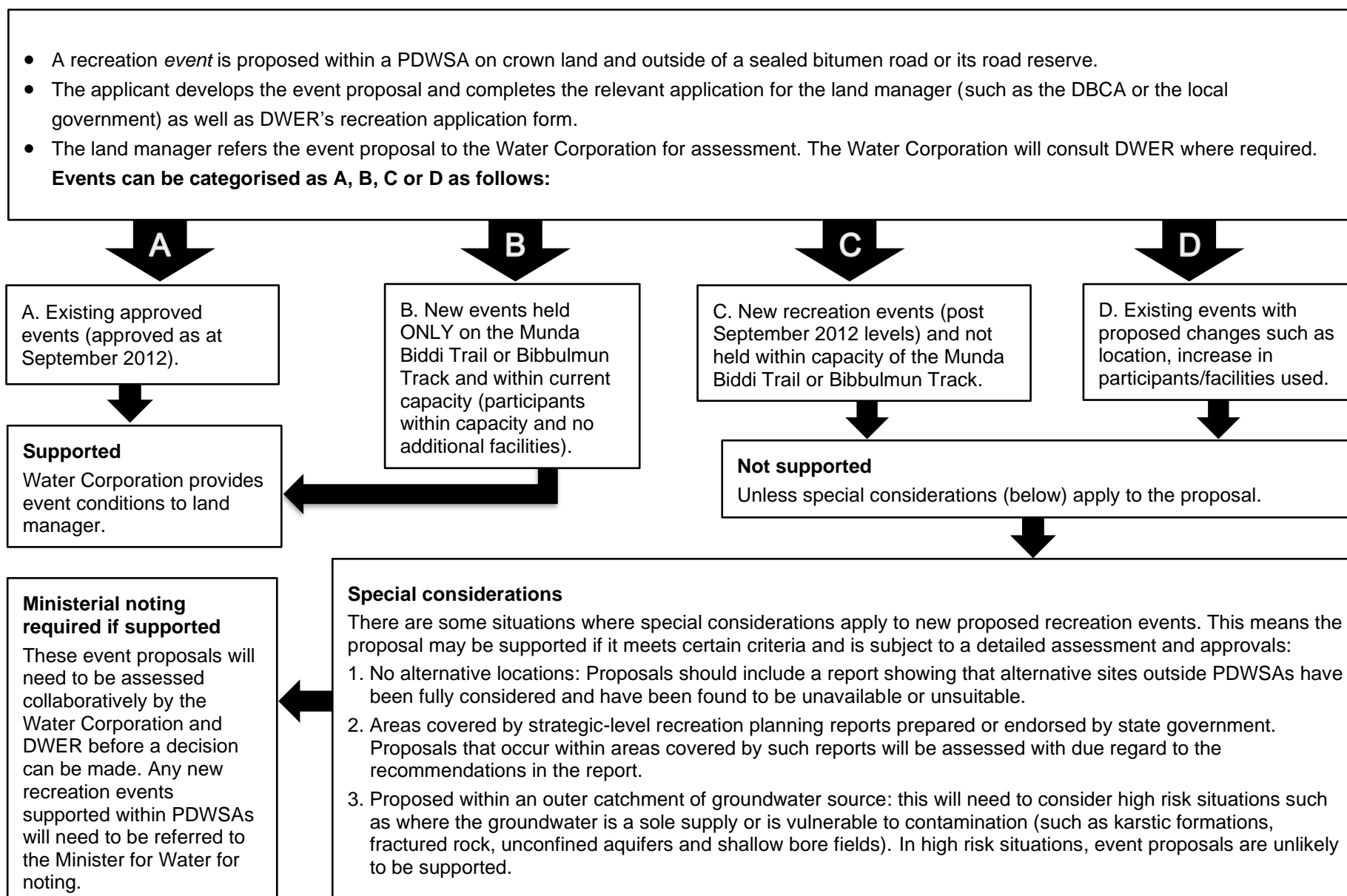


Table 5: Contact details for relevant recreation and land managers and online resources

Contact details and online resources	
Department of Biodiversity, Conservation and Attractions	<p>Mail: Locked Bag 104, Bentley Delivery Centre, WA, 6983</p> <p>Phone: (08) 9334 0265</p> <p>Website: www.dbca.wa.gov.au</p> <p>Email: enquiries@dbca.wa.gov.au</p> <p>Policy Statement 18 <i>Recreation, tourism and visitor services</i>: www.dpaw.wa.gov.au/about-us/36-policies-and-legislation</p> <p>Commercial event application form: parks.dpaw.wa.gov.au/for-business/how-apply-0</p> <p>Non-commercial event application form: parks.dpaw.wa.gov.au/know/conducting-event-park</p>
Department of Water and Environmental Regulation Water Source Protection Planning	<p>Mail: Locked Bag 10, Joondalup DC, WA, 6919</p> <p>Phone: (08) 6364 7600</p> <p>Website: www.dwer.wa.gov.au</p> <p>Email: drinkingwater@dwer.wa.gov.au</p> <p>Recreation within PDWSAs application form: www.water.wa.gov.au/__data/assets/pdf_file/0016/51119/106400.pdf</p> <p>Drinking water source protection reports: www.water.wa.gov.au/urban-water/drinking-water/drinking-water-source-protection-reports</p> <p>Recreation in the Perth Hills and South West - map of PDWSAs: www.water.wa.gov.au/__data/assets/pdf_file/0014/9032/111060.pdf</p>
Department of Water and Environmental Regulation Pollution Watch	<p>Pollution Watch 24 hour Hotline: 1300 784 782</p> <p>Email: pollutionwatch@dwer.wa.gov.au</p> <p>Online pollution reporting form: www.der.wa.gov.au/your-environment/reporting-pollution/report-pollution-form</p>

<p>Water Corporation Water Source Protection</p>	<p>Mail: PO Box 100, Leederville, WA, 6902 Phone: (08) 9420 3851 Website: www.watercorporation.com.au Email: source.protection@watercorporation.com.au Emergency hotline: 13 13 75</p>
<p>Department of Local Government, Sport and Cultural Industries</p>	<p>Mail: PO Box 329, Leederville, WA, 6903 Phone: (08) 9492 9700 Website: www.dlgsc.wa.gov.au Email: info@dlgsc.wa.gov.au</p>
<p>Bibbulmun Track Foundation</p>	<p>Mail: PO Box 7605, Cloisters Square, WA, 6850 Phone: (08) 9481 0551 Website: www.bibbulmuntrack.org.au</p>
<p>Munda Bididi Trail Foundation</p>	<p>Mail: 105 Cambridge Street, West Leederville, WA 6007 Phone: (08) 6336 9699 or 1300 654 161 Website: www.mundabididi.org.au Email: admin@mundabididi.org.au</p>
<p>Australian Government National Map</p>	<p>Website: www.nationalmap.gov.au Email: data@digital.gov.au Relevant layers: Western Australian Government > Department of Biodiversity, Conservation and Attractions > DBCA District Boundaries (DBCA-023). Source data available from www.dbca.wa.gov.au Western Australian Government > Department of Water and Environmental Regulation > Public Drinking Water Source Areas (DWER-033). Source data available from www.dwer.wa.gov.au Data.gov.au > Australian Bureau of Agriculture and Resource Economics and Sciences > Tenure of Australia's forests (2013) v2.0. Source data available from www.agriculture.gov.au</p>

Main Roads WA	<p>Mail: PO Box 6202, East Perth, WA, 6892</p> <p>Phone: 138 138</p> <p>Website: www.mainroads.wa.gov.au</p> <p>Email: enquiries@mainroads.wa.gov.au</p> <p>Main Roads WA Road Information Mapping System: //mrwebapps.mainroads.wa.gov.au/PublicMaps/RoadInformationMapping</p> <p>Relevant layer – Road Hierarchy</p>
<p>Department of Planning, Lands and Heritage</p> <p>Land Use Management Assessment Team</p>	<p>Mail: Proposal – Crown Land Enquiry, Locked Bag 2506, Perth, WA, 6001</p> <p>Phone: (08) 6551 8002</p> <p>Website: www.dplh.wa.gov.au/</p> <p>Email: proposals@dplh.wa.gov.au</p> <p>Crown land event application form: www.dplh.wa.gov.au/getmedia/71ef31a6-ec0a-4878-821f-2da2b6d6ab03/FRM-CL-Crown-Land-Enquiry-Form-Event-Access</p>

2.7 Recreation management plans

Recreation groups (greater than 25 people) and activities that attract large numbers of participants may be required to prepare a recreation management plan that identifies potential water quality risks and how these will be dealt with, prior to getting approval for an activity.

Where an activity is proposed to take place on DBCA-managed land, the plan would also need to consider risks associated with land management.

A generic recreation management plan can be developed for some activities (such as roganing) leaving site-specific details to be addressed for different event locations. Conditions may be applied by DWER (or its delegate) and/or DBCA.

2.8 Education

DWER supports education and awareness as a tool for protecting water quality and public health. Education materials include brochures, maps and best practice guidance information related to recreation in PDWSAs. These education materials are available on the DWER website at www.dwer.wa.gov.au. The Water Corporation also has a broad range of education materials available online at www.watercorporation.com.au.

A 2017 map shows catchments and recreation facilities within and outside of PDWSAs from the Perth Hills to the South West. It also shows the location of reservoir protection zones and where public access is not supported (unless on public roads). A direct link to the map is provided in Table 5. It is available online at www.dwer.wa.gov.au or by contacting us.

We are developing an interactive mapping tool that will enable users to locate their position relative to PDWSA boundaries and protection zones. It can be used to ensure individuals do not accidentally enter a protection zone. This mapping tool will be available online at www.dwer.wa.gov.au or by contacting us.

Please see Appendix E, public drinking water education and awareness and Appendix B, background, for further information on education.

2.9 Enforcement and infringements

DWER and its delegated agents (such as the Water Corporation) are responsible for enforcement of PDWSA legislation and by-laws.

By-law penalties exist under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* and the *Country Areas Water Supply Act 1947* to protect water quality and public health in PDWSAs. The by-laws can restrict the use of potentially harmful substances and control the way potentially contaminating activities are undertaken. They also prohibit or restrict public access to some areas and the department's permission may be required to undertake some activities.

Metropolitan area reservoir protection zones prohibit public access (except along public roads) to protect public drinking water reservoirs from contamination. Reservoir protection zones are recommended for PDWSAs throughout WA in DWER's publicly consulted drinking water source protection reports. Consistent with government's support for the 2010 Parliamentary Committee report, a by-law to legislatively establish reservoir protection zones across Western Australia in country areas is currently being drafted for further consultation.

Signs will continue to be used to educate people of prohibited activities within PDWSA outer catchments and reservoir protection zones.

Regulations created under the *Water Services Act 2012* include provisions relating to the protection of water service works and water quality. Penalties apply to all water quality offences. In addition, modified penalties (infringements) apply to some water quality offences.

Please see Appendix B – Background, for further information on the legislative and policy framework for Policy 13.

3 Review

This policy will be reviewed again in five years. The review process will begin in five years from publication of this policy. New and emerging recreation activities and the impact of population growth can be considered at this time.

The success of this policy will be assessed by:

- ongoing water quality and catchment environmental monitoring
- the degree of application or integration of this policy with other government policies, guidelines and approvals associated with recreation activities in PDWSAs
- the type and level of recreation occurring in outer catchments of PDWSAs
- the continued prohibition of recreation in reservoir protection zones
- the development of new or enhanced recreation outside PDWSAs.

Appendices

Appendix A – Figures

Figure A1: Reservoir protection zone and outer catchment

Figure A2: Wellhead protection zone and outer catchment

Figure A3: Public drinking water source areas abolished or had by-laws removed since 2012

Figure A4: Public drinking water source areas in Western Australia

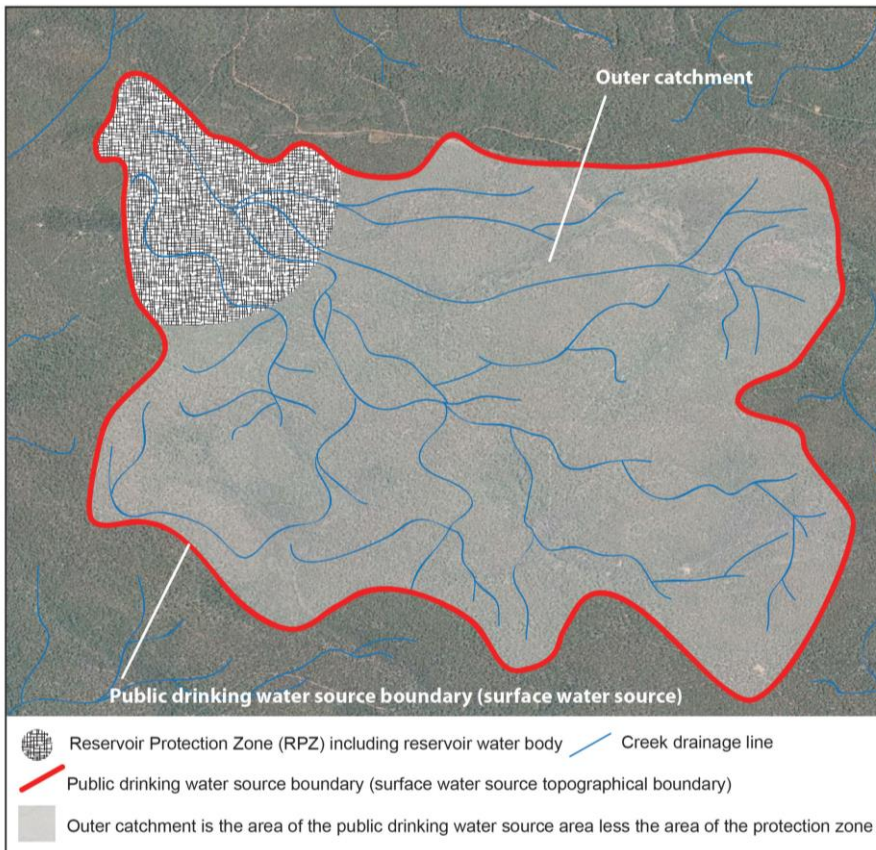


Figure A1: Reservoir protection zone and outer catchment

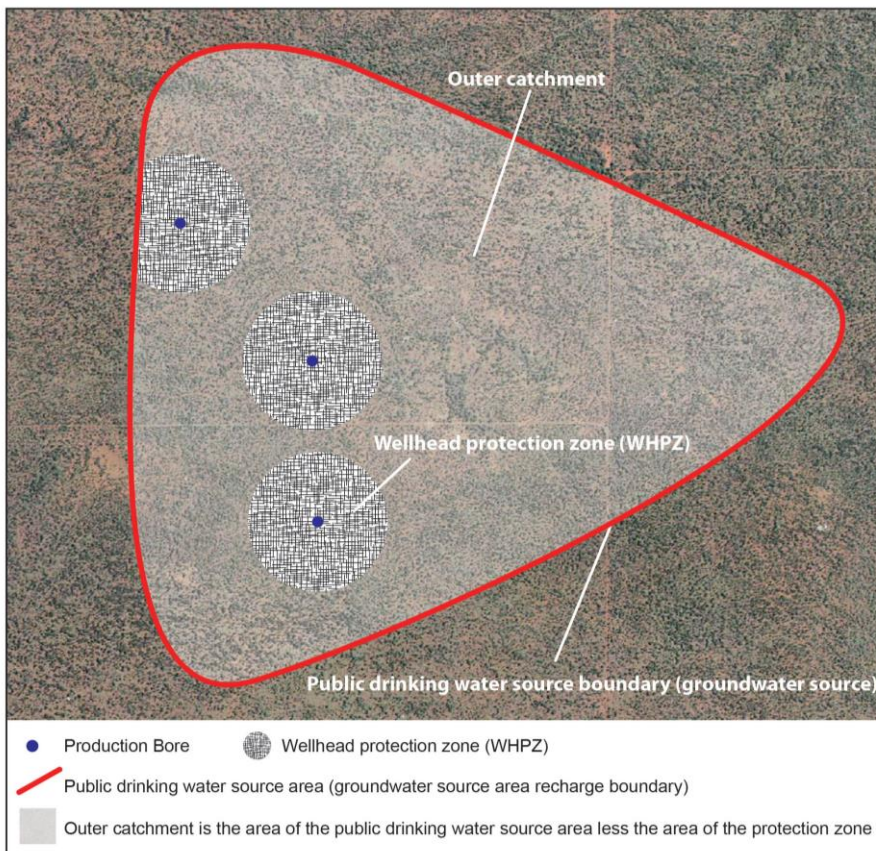


Figure A2: Wellhead protection zone and outer catchment



Figure A3: Public drinking water source areas abolished or had by-laws removed since 2012

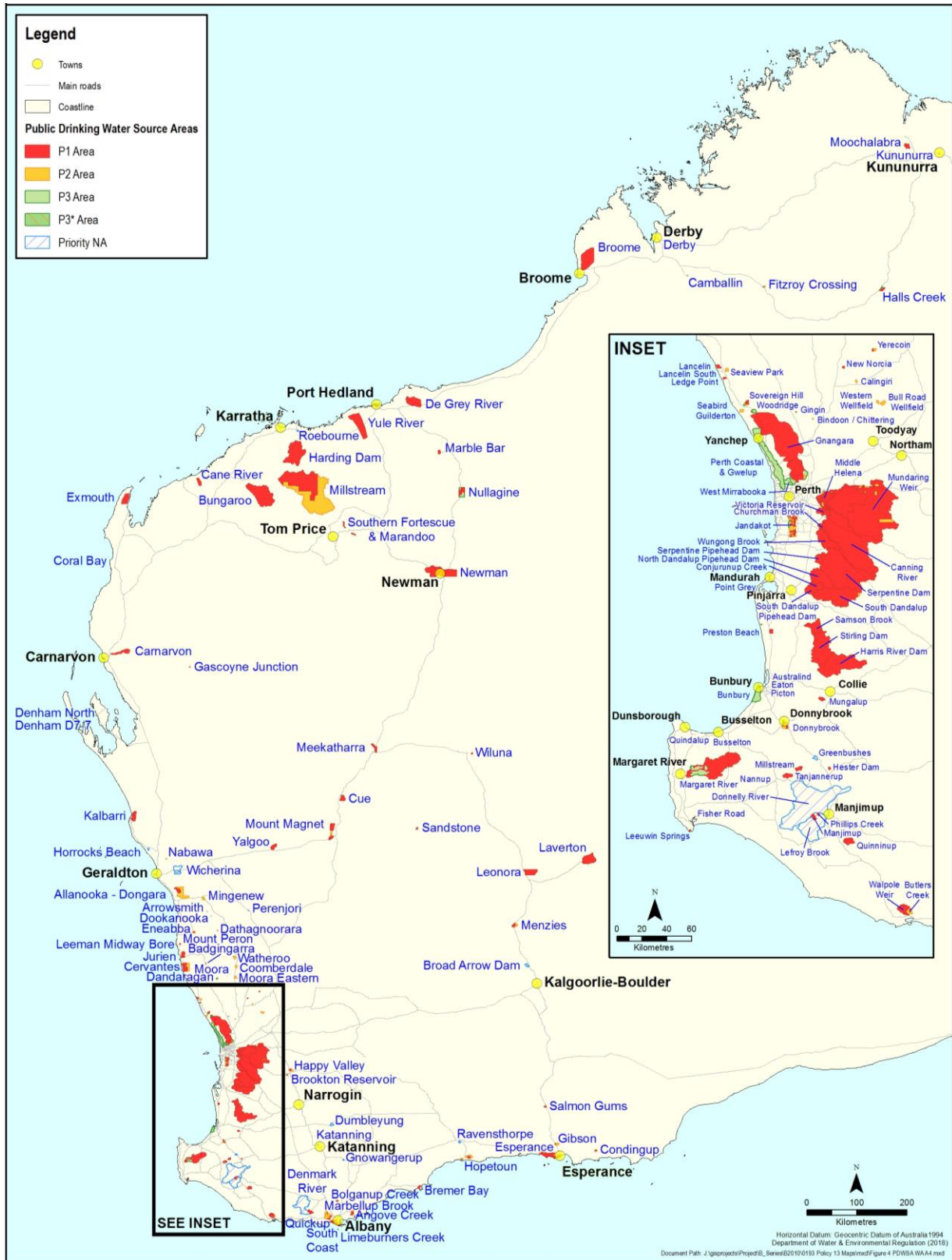


Figure A4: Public drinking water source areas in Western Australia

Appendix B – Background

Public drinking water source areas (PDWSAs)

A catchment is the area of land from which rainfall run-off and recharge contributes to a watercourse, wetland or aquifer. Where this water is used as a source of drinking water for the public in WA, the catchment is constituted under legislation, and we call it a PDWSA.

PDWSAs include underground water pollution control areas, water reserves and catchment areas which are administered under the provisions of the *Metropolitan Water Supply, Sewerage, and Drainage Act 1909* or the *Country Areas Water Supply Act 1947*.

See Appendix A, figures A3 and A4 for the location of PDWSAs in WA.

Water quality risks from recreation

PDWSAs need to be protected from contamination to maintain their drinking water value to the community. There are many activities that pose risks to the quality of water within PDWSAs.

The community receives many benefits from recreating in natural bush settings, rivers, water bodies and catchments. However when this recreation occurs in PDWSAs, there are public health risks to drinking water quality that must be considered. Increasing awareness amongst the recreation community about these risks will provide benefits for water quality and public health.

The most significant risk to water quality in PDWSAs is pathogens. Pathogens are micro-organisms that can make people ill if they are consumed. Pathogens can get into drinking water supplies via direct or indirect contamination, usually from human contact with water as well as human and animal excreta. For more information about the risks from pathogens, please see Appendix D.

In addition to contamination from pathogens, recreation can introduce other risks to water quality, such as turbidity (cloudiness) from erosion, hydrocarbons from vehicles and chemicals and nutrients from rubbish. These things can make drinking water unsafe or unpalatable even at very low concentrations. Turbidity can reduce the effectiveness of treatment processes (such as disinfection with chlorine) which further increases the risk of pathogen contamination.

It is important to be aware that water quality risks in PDWSAs can include illness, hospitalisation and death, even in developed countries like Australia. This is why a preventive risk based management approach is used to ensure the protection of water quality and public health.

The Parliamentary Committee's Report 11 provides more information about risks from recreation in PDWSAs. It states:

Recreational activity has positive social and health benefits for individuals as well as economic value to local governments but it is the very presence of humans in an ecosystem that poses the most risk to water quality and therefore risk to 'whole of community', human health. Source protection remains a first line defence given the very clear evidence that microbial pathogens persist for long periods in soil and water; and cause human illness via drinking water.

Risk-based management approaches for drinking water catchments

The *Australian drinking water guidelines* (ADWG; NHMRC & NRMCC 2011) recommend that preventive risk based management be used for protecting drinking water sources 'to maintain the supply of water at the highest practicable quality'. The guidelines recommend that strategies should be devised and applied to not only minimise risk of contamination, but to prevent such risk from occurring.

In order to ensure the water from PDWSAs is safe, it is protected through a 'catchment to consumer' process, which addresses all stages of the drinking water supply process from the source to the moment someone turns on their tap. This approach uses multiple barriers, which means we use different barriers against contamination at different stages of the drinking water supply system. The first barrier is protecting PDWSAs, that is, the sources of the drinking water. If we get this barrier right, it has a positive flow-on effect for the rest of the supply system.

An approach based on preventive risk management is different to standard risk management, because it prevents or avoids unnecessary risks rather than just adopting risk minimisation and management measures.

Table 6 summarises three different management approaches for public use of PDWSAs around Australia. A 'protected (closed) catchment' prevents public access, a 'controlled use catchment' restricts recreational use and an 'open catchment' has little or no restrictions. Some Melbourne catchments are 'closed', the 'controlled use approach' is employed in WA, and the 'open catchment' approach is used in Brisbane.

The significant public health consequences of getting the risk balance wrong in a drinking water catchment, and the public's absolute trust in the safety of the water delivered to their homes, were significant factors leading to the above ADWG recommendation.

Table 6: Catchment management approaches allowing different levels of public use of drinking water catchments

Area used by the public	Protected (closed catchment)	Controlled use catchment (WA)	Open catchment
Reservoir	No	No	Yes
Land around the reservoir (reservoir protection zone*)	No	No	Yes
Outer catchment*	No	Yes	Yes

* See Appendix A1 for an explanation of reservoir protection zone and outer catchment.

These three different types of catchment management adopt different risk management approaches. Preventive risk management is used in both 'closed' and 'controlled use catchments' and standard risk management is used in 'open catchments' (see Table 7). The type of catchment management and risk management approach used will influence:

- the risk levels in the catchment and at the at the consumer's tap
- whether or not additional barriers are required to meet the requirements of the ADWG
- the level of risk that the public could be exposed to if treatment barriers fail.

Both standard and preventive risk management approaches can deliver an acceptable level of risk, provided treatment barriers are operational at all times. However, experiences from around the developed world show that most drinking water contamination incidents occur at times when treatment fails. This is often due to a set of circumstances occurring together that overwhelm normally reliable treatment barriers. Under such a scenario, the protected or controlled management approach, which delivers the lowest level of risk in the catchment will provide the better quality drinking water to consumers.

Table 7 demonstrates that when a standard risk management approach is applied, the consumers of the water will experience a higher level of risk if increased public use (like recreation) and treatment failures coincide. As the level of recreation increases in a catchment so does the level of risk and therefore so does the need for expensive treatment. Prevention provides the greatest reliability and certainty for safe, lower cost drinking water.

Table 7: Risk levels to the consumer of different drinking water catchment management approaches

	Catchment management approach		
	Closed catchment	Controlled use catchment (WA)	Open catchment
Risk management approach used	Preventive risk management	Preventive risk management	Standard risk management
Risk to the consumer at the catchment stage	Low	Medium	High
Treatment A required	Yes	Yes	Yes
Treatment B required (because treatment A does not reduce the risk to an acceptable level)	No	No	Yes
Risk to the consumer at post-treatment stage	Low	Low	Low
Risk to the consumer if treatment barriers fail	Low	Medium	High

When government decided that controlled use catchments with a preventive risk management approach was best for WA, it considered:

- the public's expectation of access to a consistently safe drinking water supply
- the benefits and history of recreation
- achieving the right balance between protection and recreation
- the additional treatment and management costs that would be incurred if more recreational use of PDWSAs occurred.

Standing Committee on Public Administration's Report 11

In response to ongoing questions from the community about the risks of recreation within PDWSAs, the Legislative Council's Standing Committee on Public Administration conducted an inquiry during 2009 and 2010. On 23 September 2010, the committee released its report on the findings from the inquiry, titled *Report 11: Recreation activities within public drinking water source areas* (Standing Committee on Public Administration 2010).

Report findings and recommendations

The committee investigated the issue of recreating in PDWSAs. It considered what drinking water protection meant, investigated the social, economic and environmental

values of recreational access, investigated the water quality risks of recreation, assessed recreation management in PDWSAs in Australia and internationally and heard evidence from the public, recreation stakeholders and scientists.

The report found that *'protection of drinking water sources remains the paramount consideration'* in water planning, one that overrides recreational consideration. It also found that *'relaxation of Statewide Policy 13 [2003] in the outer catchment will create health risks'* and *'humans recreating in source areas pose an unacceptable risk to drinking water quality'*.

The committee advised that water quality protection measures in PDWSAs needed to be improved to protect public health. However, it also acknowledged that *'recreation in natural environments provides an important benefit and addresses many modern day health problems'*. The committee noted the conundrum was how to achieve both outcomes (the increased protection of PDWSAs and increased recreation opportunities).

To resolve this matter, the committee decided that recreation should be focussed outside PDWSAs, that is, in catchments or dams that are not used for public drinking water supply. It also said that some PDWSAs that were no longer required to supply drinking water could be abolished, which would allow for more recreation opportunities, but that more stringent by-laws and penalties should be applied in the remaining PDWSAs.

Risk assessment of recreation

The committee considered the opinion that recreation within PDWSAs should use a new risk management approach. Submissions from recreation groups and individuals argued that the current approach was 'risk avoidance' rather than 'risk management'. However, the committee concluded that this was inaccurate. Preventive risk management is a process used to avoid, reduce or control risks whereas risk avoidance is making a decision not to become involved in, or to withdraw from a risk situation altogether. The committee said:

The Water Corporation's adherence to the Australian Drinking Water Guidelines, the Department of Water's [now Department of Water and Environmental Regulation] administration of Statewide Policy 13 and the Department of Health's work in water purity provide evidence of a 'risk management' approach.

The committee also found *'that limiting recreational access in public drinking water source areas to their current level is appropriate risk management.'* Its view was that regardless of the increase in demand for outdoor recreation in natural settings, the increase in cumulative risk of ever-increasing recreation groups means that Policy 13 should continue to be a significant tool to use for managing risk in PDWSAs and recommended *'that all future reviews of Statewide Policy 13 should be based on the imperative of source protection and guided by the precautionary principle.'*

In examining the risks that recreation poses to water quality, the committee considered using quantitative risk assessment. They found cumulative recreational activity has ecological impacts which pose an unacceptable risk to raw water quality, but given that there is a degree of uncertainty with respect to some of these impacts, the committee found that a precautionary approach was required. It noted the need for qualitative rather than quantitative assessments, due to the limited availability of quantitative data. Further, it is unlikely that the costs involved in quantifying these relationships will be justifiable by any agency or organisation.

The committee concurred that allowing one activity in a PDWSA sets a precedent for other activities to also be allowed. Even if each activity claims to be 'low risk', the cumulative risks would be high. It also said that allowing activities results in:

the type of unfortunate legacy issue that the committee observed in Queensland, that once a group has been conditionally allowed into a catchment to recreate near a water body, it develops a culture of rights that makes it extremely difficult to oust that group, especially when that group sees their impact as low risk or benign.

Cost of treatment

The committee noted that increased recreation would significantly increase water treatment costs and that there were '*far higher priority calls on the public purse*'. It referred to estimates that treatment costs would rise by \$200 – 300 million per scheme, in addition to ongoing annual costs of more than \$2 million per dam and also result in a loss of usable water.

In this situation, an additional natural treatment step would be required such as an environmental storage barrier. This would be expensive and costed at \$333 million per scheme and requiring, pipelines, pump stations, tanks and aquifer recharge pipework.

The committee found:

it is possible to treat public drinking water to reduce potential health risks arising from access to the source areas to that water for recreational use. The Committee further finds that such treatments entail significant cost and cannot guarantee a safe drinking water supply.

Review of existing public drinking water source areas

After Report 11 was released in 2010, investigations showed that the catchments identified in the report were no longer required for drinking water supply. These PDWSAs have now all been made available for increased recreation and tourism opportunities though abolition or the removal of recreation-based by-laws:

- Bancell Brook Catchment Area
- Bickley Brook Catchment Area

- Boddington Dam Catchment Area
- Brunswick Catchment Area
- Dirk Brook Water Reserve
- Gooralong Brook Water Reserve
- Harvey Dam Catchment Area
- Mullalyup Water Reserve
- Murray River Water Reserve
- Padbury Reservoir Catchment Area
- Wellington Dam Catchment Area.

Since that time, a further four PDWSAs have now been abolished or had their recreation-based by-laws removed in the South West:

- Deep River Water Reserve
- Kent River Water Reserve
- Scotsdale Brook Water Reserve
- Warren River Water Reserve.

Please see Appendix A, Figure A3 for a map of these areas.

While some of these catchments may not have well developed recreation facilities, they are areas that should be considered for new recreation events and facilities. In two of these, government has already improved recreation facilities and increased capacity. Over \$4 million was spent in the Wellington Dam Catchment Area and about \$5.5 million was spent in the Murray River Water Reserve on upgrades in Lane Poole Reserve. Recreation facilities have also been developed in other areas close by, such as in Logue Brook Dam where about \$3.3 million has been spent.

DWER, in consultation with water service providers, will continue to investigate and abolish any PDWSAs that are no longer required for drinking water. The counterbalance of this outcome is that the remaining PDWSAs need increased protection, to achieve the Parliamentary Committee's recommendation.

The committee also recommended the continuation of the collaborative approach of the IACWG and investigations identifying appropriate dams and catchments suitable for irrigation and recreation purposes. This work is ongoing and remains a priority for the IACWG (see section 2.2).

Department of Water and Environmental Regulation's assessment of recreation

On 10 August 2011, the government of Western Australia responded to the Parliamentary Committee's Report 11 (see Appendix C). Policy 13 is consistent with and implements this response.

The government supported ten recommendations made by the committee and 'noted' one, which was considered later as part of the 2012 update of Policy 13:

Recommendation 1: there should be *'no increase in the amount of current recreational activity in the outer catchments of public drinking water source areas'*.

Through the 2012 update of this policy, DWER determined that new recreation facilities in PDWSAs should not be supported, noting that increases in overall recreation numbers in PDWSA outer catchments are likely due to population growth. Locating new facilities and recreation types outside PDWSAs would, however, help to control these numbers and reduce water quality risks. Consistent with this, Policy 13 has again been reviewed on the basis that:

- currently approved recreation types and levels in outer catchments (as at September 2012) can continue
- existing recreation facilities (as at September 2012) can be maintained or upgraded provided their designated use and capacity does not increase
- new recreation facilities and recreation types need to be located outside PDWSAs.

September 2012 levels of recreation

September 2012 levels of recreation in PDWSAs have been chosen as a baseline that we should not exceed, because this is the time when Policy 13 was released based on the Parliamentary Committee recommendation that no further recreation should be supported in PDWSAs.

We need to be able to determine what recreation events and facilities existed and were approved up until September 2012. This is determined using state government environmental regulation management plans and other government documentation and evidence. This assessment includes input from recreation stakeholders and the IACWG (see section 2.2). A common sense assessment of recreation facilities and events has been applied that does not promote or support increased recreation in PDWSAs.

Legislative and policy framework

The protection of water quality in PDWSAs relies upon legislation, policy and public education. Through these instruments the provision of safe, reliable, lower cost, good quality drinking water will continue to be available for the public. For more information about PDWSAs and how we protect them, please read our Strategic policy: *Protecting public drinking water source areas in Western Australia* (Department of Water 2016).

The following legislation and policy provides the framework for protecting drinking water quality and public health in WA. There is a broader context of education, consultation and collaborative management with other government departments that supports this legislation.

Metropolitan Water Supply Sewerage and Drainage Act 1909 and Country Areas Water Supply Act 1947

The *Metropolitan Water Supply, Sewerage, and Drainage Act 1909* and the *Country Areas Water Supply Act 1947* protect water quality within PDWSAs. They are administered DWER and provide for protection of PDWSAs via constitution of catchment areas, water reserves and underground water pollution control areas (collectively known as PDWSAs).

By-laws or regulations are made under these acts for the purpose of protecting water quality, which in turn protects public health. The by-laws can restrict the use of potentially harmful substances and control the way potentially contaminating activities are undertaken. They also prohibit or restrict public access to some areas and the department's permission may be required to undertake some activities.

The Parliamentary Committee's Report 11 (2010) found that penalties under these by-laws were not an effective deterrent and failed to adequately protect PDWSAs. The report also found that the absence of an infringement notice system under these acts is was an impediment to effective implementation of the by-laws and regulations.

Given these findings and subsequent recommendations, this legislation is proposed to be updated in the future.

Water Services Act 2012

The *Water Services Act 2012* relates to the provision of water services and the regulation of providers and related purposes.

The regulations created under this act include provisions relating to the protection of water service works and water quality. This includes controlling entry to land, contamination of water supply (including a prohibition on swimming and bringing in animals), and protection against impacts from camping, fires, littering, fishing and hunting.

Penalties apply to all water quality offences. In addition, modified penalties (infringements) apply to some water quality offences.

Environmental Protection Act 1986

The *Environmental Protection Act 1986* controls the discharge of waste to the environment, including water sources, likely to cause pollution. Discharge of waste may be controlled through works approvals, licences or by specific regulations.

This act can also require that development proposals within PDWSAs are assessed for their environmental impact, for example, if a proposal is likely to cause water quality contamination.

Health (Miscellaneous Provisions) Act 1911

Public drinking water supply is protected from pollution under the *Health (Miscellaneous Provisions) Act 1911*. This act defines water supply as any river, stream, watercourse, creek, swamp, water hole, well, tank, lake or reservoir containing water intended or available for human consumption.

The Department of Health, which administers this act, is responsible for specifying drinking water requirements in WA. It requires that drinking water is safe and meets the *Australian drinking water guidelines* (ADWG, NHMRC & NRMCC 2011, see below). As medical and scientific knowledge is updated, the Department of Health's requirements for safe drinking water will also be updated to ensure ongoing protection of public health.

Australian drinking water guidelines

The ADWG (NHMRC & NRMCC 2011), provides guidance on the microbiological, physical, chemical and radiological quality of drinking water. The guidelines recommend a preventive risk based approach and multiple barriers to protect public drinking water supplies. The ADWG recommends:

- developing strategies, policies and guidelines to manage land use and activities in PDWSAs
- protecting drinking water sources from contamination
- maintaining an active surveillance program in PDWSAs
- providing special protection for sensitive areas such as water reservoirs (reservoir protection zones), streams and groundwater wellheads
- treating raw water to ensure a safe drinking water supply to consumers.

The ADWG is reviewed and updated regularly as new information becomes available, the current version, 3.4, was updated in October 2017.

Appendix C – Standing Committee on Public Administration’s Report 11 and government’s response



THIRTY-EIGHTH PARLIAMENT

REPORT 11
STANDING COMMITTEE ON PUBLIC
ADMINISTRATION
RECREATION ACTIVITIES WITHIN PUBLIC
DRINKING WATER SOURCE AREAS

Presented by Hon Max Trenorden MLC (Chairman)

September 2010

STANDING COMMITTEE ON PUBLIC ADMINISTRATION

Date first appointed:

17 August 2005

Terms of Reference:

The following is an extract from Schedule 1 of the Legislative Council Standing Orders:

“7. Public Administration Committee

7.1 A *Public Administration Committee* is established.

7.2 The Committee consists of 5 members.

7.3 The functions of the Committee are to inquire into and report on -

- (a) the structure, efficiency, and effectiveness of the system of public administration;
- (b) the extent to which the principles of procedural fairness are embodied in any practice or procedure applied in decision making;
- (c) the existence, adequacy, or availability, of merit and judicial review of administrative acts or decisions;
- (d) any Bill or other matter relating to the foregoing functions referred by the House; and
- (e) to consult regularly with the Parliamentary Commissioner for Administrative Investigations, the Public Sector Standards Commissioner, the Information Commissioner, and any person holding an office of a like character.

7.4 The Committee is not to make inquiry with respect to -

- (a) the constitution, functions or operations of the Executive Council;
- (b) the Governor’s establishment;
- (c) the constitution and administration of Parliament;
- (d) the judiciary;
- (e) a decision made by a person acting judicially;
- (f) a decision made by a person to exercise, or not exercise, a power of arrest or detention; or
- (g) the merits of a particular case or grievance that is not received as a petition.”

Members as at the time of this inquiry:

Hon Max Trenorden MLC (Chairman)

Hon Jim Chown MLC

Hon Jon Ford MLC (Deputy Chairman)

Hon Ed Dermer MLC

Hon Ken Baston MLC

Staff as at the time of this inquiry:

Anne Turner, Advisory Officer (Legal)

Carolyna Malouf, Committee Clerk from 5th
February 2010 to 6 August 2010

Peter Axford, (Research Officer)

Renae Jewell, Committee Clerk from 9 August
2010

Cassandra Stephenson,
Committee Clerk to 17 February 2010

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ISBN 978-1-921634-47-5

EXECUTIVE SUMMARY, FINDINGS AND RECOMMENDATIONS

EXECUTIVE SUMMARY

- 1.1 The Standing Committee on Public Administration does not support the use of public drinking water source areas for both recreation and drinking water supply. Two previous parliamentary inquiries have endorsed the need for a preventive approach to source protection in Western Australia and this Report builds on that work. Source protection is the paramount consideration in water planning and overrides any recreational consideration. Western Australia's century old preventive approach to source protection has strong foundations in significant public health events, prescriptive legislation, globally best practice Australian Drinking Water Guidelines and the Department of Water's Statewide Policy 13.
- 1.2 Two community surveys as well as 193 submissions the Committee received for this Inquiry overwhelmingly reveal that the general public have a fundamental concern for the primacy of drinking water and its source protection.
- 1.3 Relevant considerations in the Committee's conclusion that dual use of public drinking water source areas is untenable, included:
 - diminishing surface yields in the catchments as a result of a drying climate;
 - the need to protect expensively produced surplus desalinated water stored in various catchment reservoirs;
 - that human pathogens remain the most significant threat to water quality;
 - that human presence in the catchments has cumulative, adverse ecological impacts potentially affecting water quality; and
 - that the recreational benefits of activities in natural environments can be achieved in locations other than public drinking water source areas.
- 1.4 From Mundaring in the Perth hills to Boyup Brook in the south-west, the Committee identified 29 catchment areas and water reserves that can supply drinking water noting that only 18 are currently being used. The Department of Water and the Water Corporation are now reviewing Bancell Brook Catchment Area; Bickley Brook Catchment Area; Boddington Dam Catchment Area; Brunswick Dam Catchment Area; Dirk Brook Water Reserve; Gooralong Brook Water Reserve; Harvey Dam Catchment Area; Mullalyup Water Reserve; Murray River Water Reserve; and

Wellington Dam Catchment Area for de-proclamation as public drinking water source areas. The vast majority of these catchment areas and water reserves already allow many forms of recreation in the outer catchment and at a minimum, walk trails. If de-proclamation were to occur, additional recreational opportunity would become available. However, the remaining eight catchment areas and water reserves would require an even more stringent application of government policy and enforcement of legislation to protect raw water quality. 12 irrigation or recreation lakes and dams are not public drinking water source areas and are currently available for recreational activities.

- 1.5 Recreational activity has positive social and health benefits for individuals as well as economic value to local governments but it is the very presence of humans in an ecosystem that poses the most risk to water quality and therefore risk to ‘whole of community’, human health. Source protection remains a first line defence given the very clear evidence that microbial pathogens persist for long periods in soil and water; and cause human illness via drinking water.
- 1.6 The Committee witnessed the worst effects of human behaviour in the catchments from photographs of pig entrails next to the water’s edge of a reservoir to visual inspection of gouged shoreline from trail bike tracks at Mundaring reservoir. The Committee learned that a dead kangaroo in a water body or catchment is less likely to carry infective organisms than a person swimming illegally in a dam; that chemical contaminants do not replicate themselves in the same way that organisms will; and that the role of disinfection by-products from fully treated water has been the subject of extensive but inconclusive epidemiological and toxicological research, necessitating a precautionary approach.
- 1.7 The Committee deferred to Water Services Association of Australia’s literature review of the *Effects of recreational activities on source water protection areas*, to understand the impacts of human presence on flora and fauna, biodiversity, water quality and soil. The Committee was particularly concerned at the immediate and long term impact of wildfires caused by human presence in forests, especially in circumstances of a subsequent weather event with sudden, accelerated high run-off on pathogen behaviour. This was described by one witness as an ‘aquatic freeway’ straight into the water body.
- 1.8 Cumulative recreational activity has ecological impacts in catchments which pose an unacceptable risk to raw water quality. Given that there is a degree of uncertainty with respect to some of these impacts, the Committee found that a precautionary approach within a risk management framework is preferred for the recreational activity that is currently allowed in catchments.

- 1.9 The Committee discovered that the penalties for breaching the By-laws protecting our public drinking water source areas encourage potential offenders. Substantial increases of up to \$5,000 have been recommended through amendments to the principal legislation as well as an infringement notice system with modified and daily offence penalty provisions to deter access.
- 1.10 Contrary to opinion expressed in the majority of submissions, Statewide Policy 13 does not lock people out of public drinking water source areas, rather it restricts incompatible activities and provides for passive, land-based recreation as well as a small number of events subject to rigorous assessment and conditional approval. Previous application of Statewide Policy 13 has raised an expectation that approvals based on past custom and practice will be granted. In order to protect public drinking water source areas, any future conditional approval applications should be limited.
- 1.11 Allowing any further relaxation of Statewide Policy 13 in the outer catchments will create health risks for water providers to manage on behalf of future generations of Western Australians. The current system of conditional approvals has unfortunately created a culture of 'rights' to access public drinking water source areas for certain group events. It is then difficult to restrict the access those groups have had in a particular location.
- 1.12 Comparing interstate and overseas jurisdictions revealed a diversity of drinking water source protection practices which can be explained by historical, multiple land use and significant public health events.
- 1.13 The recreational fishing community pleaded for access to catchments' water storages, arguing that with modern technology, these should be opened and the water fully treated before entering the reticulated system. However, the Committee found the cost of alternative water quality treatment to be prohibitive. For example, if hypothetically, Harding dam in the Pilbara was converted to dual use, the estimated cost would be \$49.75 million for additional processes, \$333 million for an environmental storage barrier and \$3 million in additional annual operating costs. The cost of water treatment so as to enable recreation in the catchments is contrary to the Australian Drinking Water Guidelines. These guidelines include a multiple barrier approach to protecting drinking water sources, which is more cost effective and efficient than full treatment. There are far higher priority calls on the public purse.
- 1.14 The Committee noted many alternative sites available for recreational use and that if some public drinking water source areas are de-proclaimed, they would provide further opportunity.

FINDINGS AND RECOMMENDATIONS

- 1 Findings and Recommendations are grouped as they appear in the text at the page number indicated:

Page 9

Finding 1: The Committee finds that an ever increasing proportion of Western Australia's potable water is produced by desalination and groundwater recovery, which entails significant capital and operational cost. In addition to the public health imperative, this cost furthers the importance of protecting existing surface water dams and their catchments.

Page 31

Finding 2: The Committee finds that the recreational community places a high social value on recreation in natural bush settings, rivers, water bodies and catchments.

Page 35

Finding 3: The Committee finds that recreational activity provides economic benefit to the State and particularly to local government districts.

Page 37

Finding 4: The Committee finds that the objectives of providing safe water and achieving the health and social benefits of interaction with natural environments are not compatible in the same geographical area. Public drinking water source areas are best committed to the single purpose of providing safe water.

Page 46

Finding 5: The Committee finds that recreation in natural environments provides an important benefit and addresses many modern day health problems. However, protection of drinking water sources remains the paramount consideration.

Page 57

Finding 6: The Committee finds that that humans recreating in source areas pose an unacceptable risk to drinking water quality.

Page 58

Recommendation 1: The Committee recommends no increase in the amount of current recreational activity in the outer catchments of public drinking water source areas.

Page 59

Recommendation 2: The Committee recommends that the public drinking water source areas identified by the interagency collaborative partnership described in paragraph 4.37 as appropriate for de-proclamation as public drinking water source areas, be used for irrigation and recreation.

The Committee further recommends that recreational activity be managed by a working group for each such area comprising representatives as appropriate from the Department of Water, Department of Environment and Conservation, Department of Sport and Recreation, Department of Health, the Water Corporation, Tourism WA and the relevant local government authority.

Page 59

Recommendation 3: The Committee recommends the continuation of the collaborative approach between the Department of Water, Department of Environment and Conservation, Department of Sport and Recreation, Department of Health and the Water Corporation towards identifying appropriate dams and their catchments compatible for irrigation and recreational purposes. The Committee anticipates that this would increase recreational opportunities for the people of Western Australia.

Page 65

Finding 7: The Committee finds that limiting recreational access in public drinking water source areas to their current level is appropriate risk management.

Page 75

Finding 8: The Committee finds that the penalties for breaching the Metropolitan Water Supply, Sewerage and Drainage By-laws 1981 are not an effective deterrent and fail to adequately protect public drinking water source areas.

Page 75

Finding 9: The Committee finds that the absence of an infringement notice system in the *Metropolitan Water Supply, Sewerage, and Drainage Act 1909* is an impediment to effective enforcement of the Metropolitan Water Supply, Sewerage and Drainage By-laws 1981.

Page 75

Recommendation 4: The Committee recommends that the penalties in by-law 31.4 of the Metropolitan Water Supply, Sewerage and Drainage By-laws 1981 be increased to a level comparable to the \$5,000 penalty found in the *Local Government Act 1995*. This recommendation reflects the seriousness of the offences contained in by-law 31.4.

Page 76

Recommendation 5: The Committee recommends an amendment to the *Metropolitan Water Supply, Sewerage, and Drainage Act 1909* to provide for an infringement notice system and modified penalties of \$500 to apply to the Metropolitan Water Supply, Sewerage and Drainage By-laws 1981.

Page 77

Finding 10: The Committee finds that the penalties in the Country Areas Water Supply By-laws 1957 are not an effective deterrent and fail to adequately protect public drinking water source areas.

Page 77

Finding 11: The Committee finds that the absence of an infringement notice system in the *Country Areas Water Supply Act 1947* is an impediment to effective enforcement of the Country Areas Water Supply By-laws 1957.

Page 78

Recommendation 6: The Committee recommends that the penalties in the Country Areas Water Supply By-laws 1957 be increased to a level comparable to the \$5,000 penalty found in the *Local Government Act 1995*. This recommendation reflects the seriousness of the offences contained in the By-laws.

Page 78

Recommendation 7: The Committee recommends an amendment to the *Country Areas Water Supply Act 1947* to provide for an infringement notice system and modified penalties of \$500 to apply to the Country Areas Water Supply By-laws 1957.

Page 89

Recommendation 8: The Committee recommends that the 1994 Agreement between the Federation of Western Australian Bushwalkers Inc and the Water Corporation as described in paragraph 5.55 be cancelled.

Page 89

Recommendation 9: The Committee recommends that all future reviews of Statewide Policy 13 should be based on the imperative of source protection and guided by the precautionary principle.

Page 100

Finding 12: The Committee finds that a comparative analysis of recreational access in other Australian and overseas drinking water sources is unhelpful in determining an appropriate level of access for Western Australia. Diverse drinking water source protection practices are explained by historical multiple land use and significant public health events.

Page 112

Finding 13: The Committee finds that it is possible to treat public drinking water to reduce potential health risks arising from access to the source areas to that water for recreational use. The Committee further finds that such treatments entail significant cost and cannot guarantee a safe drinking water supply.

Page 120

Finding 14: The Committee finds an absence of a lead agency that should be responsible for decision making in the Priority 1 area of the Kununurra Water Reserve.

Page 120

Recommendation 10: The Committee recommends that a lead agency be nominated to be responsible for decision making in the Priority 1 area of the Kununurra Water Reserve.

Page 121

Recommendation 11: The Committee recommends that the Government give consideration to relocating the Kununurra bore field to another site to enable the development of the existing Priority 1 area of the Kununurra Water Reserve as a tourist precinct.

CHAPTER 11

CONCLUSIONS

- 11.1 The Committee recognises that recreation has positive social, physical and mental health benefits for individuals as well as economic value to the State. However, the Committee concluded that the use of public drinking water source areas for both recreation and drinking water is untenable. The community can recreate outside public drinking water source areas given the abundance of natural environments. As a result of a drying climate, there is a shortage of surface drinking water source environments and this will continue into the future.
- 11.2 Policy agreement between the collaborative partners will likely result in some catchments and water reserves from the Perth Hills down to the south-west of the State being de-proclaimed, thereby increasing recreational access.
- 11.3 Western Australians have enjoyed safe drinking water for over a century but the Committee observed a loss of collective memory regarding the health events such as the outbreaks of typhoid between 1895 to 1900, that prompted our preventive approach to drinking water source protection. As the Water Corporation stated: “*We have now gone three or four generations since the public water supplies were set up in Western Australia, ... we take for granted the high-quality drinking water that we currently experience.*”⁴¹⁰
- 11.4 The Committee is persuaded by the evidence that it is the very presence of humans in the environment that poses the most risk to water quality and therefore risk to ‘whole of community’ human health. Source protection is a first line defence given that microbial pathogens cause human illness via drinking water. Where scientific evidence has neither demonstrated nor is conclusive about the impacts of a particular type of recreational activity on source water, a precautionary approach to source protection is essential.
- 11.5 The Committee concluded that Statewide Policy 13 is an essential tool for protecting our source areas. Water Corporation monitoring demonstrates that the existing land use activities allowed under Statewide Policy 13 do not compromise metropolitan water quality. The Policy’s tables, which list the compatibility of land and water based recreational activities, should not be disturbed. This approach makes drinking water safe, simple to treat and less expensive.

⁴¹⁰ Mr Keith Cadsee, General Manager, Water Technologies Division, Water Corporation, *Transcript of Evidence*, 21 October 2009, p3.

Public Administration Committee

ELEVENTH REPORT

- 11.6 Contrary to opinion expressed in the majority of submissions, Statewide Policy 13 does not lock people out of source areas, it restricts incompatible activities and provides for passive, land-based recreation as well as a small number of events subject to rigorous assessment and conditional approval. Previous application of Statewide Policy 13 has raised an expectation that approvals based on past custom and practice will be granted. In order to protect source areas, any future conditional approval applications should be limited.
- 11.7 The Committee concluded that the penalties for breaching the By-laws protecting our source areas should be substantially increased to deter potential offenders.



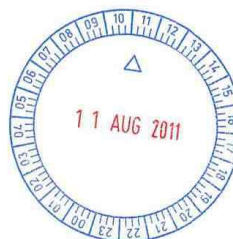
Hon Max Trenorden MLC
Chairman
23 September 2010



MINISTER FOR ENVIRONMENT; WATER

Our Ref: 42-06521

Mr Michael Baker
 Clerk Assistant (Committees)
 Legislative Council
 Parliament House
 PERTH WA 6000



Dear Mr Baker

Standing Committee on Public Administration Report 11 - *Recreation activities within public drinking water source areas*

I am pleased to provide the State Government's response to the recommendations of the Standing Committee on Public Administration's Report 11 – *Recreation activities within public drinking water source areas*.

The recommendations and findings of this report will help guide recreation and drinking water source protection legislation and policy for many years. The report:

- reinforces the findings of two previous Parliamentary Committee reports (1994 and 2000), which identified that public drinking water source areas need special protection measures; and
- identifies that new or enhanced recreation opportunities across a range of catchment types will provide better physical and mental health outcomes for the community, as well as more engagement with nature.

Government recognises that a growing demand for recreation will require additional resourcing. This matter will be considered for Government in 2011 through the existing inter-agency collaborative working group comprising the departments of Sport and Recreation, Environment and Conservation, Health, Water and Water Corporation.

In relation to the State's drinking water source protection program, implementation of the Standing Committee's recommendations will help ensure the ongoing availability of a reliable, safe and lower cost water supply to consumers and communities across WA.

I take this opportunity to thank the Standing Committee on Public Administration for its report on these important matters.

Yours sincerely

**HON BILL MARMION MLA
 MINISTER FOR ENVIRONMENT; WATER**

LEGISLATIVE COUNCIL OF WA

**TABLE COPY
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**Government's response to the Legislative Council Standing
Committee on Public Administration Report 11 - *Recreation
activities within public drinking water source areas.***

Recommendation one:

The Committee recommends no increase in the amount of current recreational activity in the outer catchments of public drinking water source areas.

Government response:

Recommendation 1 is noted.

This recommendation will be considered in a planned review of the Department of Water's Statewide Policy 13 – *Policy and guidelines for recreation within public drinking water source areas on Crown land 2003*. The Department of Water will publicly review this policy in 2011.

The demand for recreation opportunities in natural areas will continue to increase into the future and new types of recreation will also arise. These matters will be considered as part of the review process for Policy 13, and as part of the inter-agency collaborative working group's (see Recommendation 3) consideration of recreation matters.

Recommendation two:

The Committee recommends that the public drinking water source areas identified by the interagency collaborative partnership described in paragraph 4.37 as appropriate for de-proclamation as public drinking water source areas, be used for irrigation and recreation.

The Committee further recommends that recreational activity be managed by a working group for each such area comprising representatives as appropriate from the Department of Water, Department of Environment and Conservation, Department of Sport and Recreation, Department of Health, the Water Corporation, Tourism WA and the relevant local government authority.

Government response:

Recommendation 2 is supported.

The inter-agency collaborative working group described in paragraph 4.37 of the Standing Committee's report consists of representatives from Department of Sport and Recreation, Department of Environment and Conservation, Department of Water, Department of Health and Water Corporation.

Eleven PDWSAs will be investigated for de-proclamation. These are Bickley Brook Catchment Area (CA), Gooralong Brook Water Reserve (WR), Dirk Brook WR,

Boddington Dam CA, Murray River WR, Bancell Brook CA, Harvey Dam CA, Brunswick CA, Wellington Dam CA, Mullalyup WR and Padbury Reservoir CA. These catchments can support a range of different land and water based recreation opportunities.

Government has already completed a preliminary assessment of these PDWSAs. It is expected that most of them could be deproclaimed within the next 2 years. However, Padbury and Mullalyup are currently used as emergency sources and are expected to be de-proclaimed post-2016. De-proclamation of Wellington Dam Catchment Area is also subject to Government decisions on the management of water resources in the Collie area. A staged de-proclamation process is therefore required to allow for efficient water supply and recreational planning to occur.

In de-proclaimed PDWSAs, the areas will continue to be managed in accordance with the underlying tenure of land whether it be private land, shire reserve, State forest or conservation reserve. Since tenure of the proposed de-proclaimed areas is mixed, the areas may be managed by many different individuals and organisations. As such the establishment of a working group for each de-proclaimed area would be difficult. Accordingly, establishment of working groups will be addressed on a case by case basis. Representatives from Tourism WA and the relevant local government authority will be incorporated into area based working groups as appropriate.

It should be noted that it will be important to achieve a balance of recreational opportunities. Different opportunities will be made available in appropriate locations across a region; however, it will not be possible to provide all recreational opportunities at all locations. It is also important to note that other constraints may exist (e.g. mining and plantations) to recreation use. These constraints will also be considered by the inter-agency working group.

Recommendation three:

The Committee recommends the continuation of the collaborative approach between the Department of Water, Department of Environment and Conservation, Department of Sport and Recreation, Department of Health and the Water Corporation towards identifying appropriate dams and their catchments compatible for irrigation and recreational purposes. The Committee anticipates that this would increase recreational opportunities for the people of Western Australia.

Government response:

Recommendation 3 is supported.

The inter-agency collaborative working group will continue to work towards developing a coordinated and regional approach to maximise both recreational opportunities and the protection of public drinking water source areas.

The development of a recreation planning framework and methodology is being considered to help achieve this outcome. This work would be facilitated by the Department of Sport and Recreation.

Recommendation four:

The Committee recommends that the penalties in by-law 31.4 of the Metropolitan Water Supply, Sewerage and Drainage By-laws 1981 be increased to a level comparable to the \$5,000 penalty found in the *Local Government Act 1995*. This recommendation reflects the seriousness of the offences contained in by-law 31.4.

Recommendation five:

The Committee recommends an amendment to the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* to provide for an infringement notice system and modified penalties of \$500 to apply to the Metropolitan Water Supply, Sewerage and Drainage By-laws 1981.

Recommendation six:

The Committee recommends that the penalties in the Country Areas Water Supply By-laws 1957 be increased to a level comparable to the \$5,000 penalty found in the *Local Government Act 1995*. This recommendation reflects the seriousness of the offences contained in the By-laws

Recommendation seven:

The Committee recommends an amendment to the *Country Areas Water Supply Act 1947* to provide for an infringement notice system and modified penalties of \$500 to apply to the Country Areas Water Supply By-laws 1957.

Government response:

Recommendations 4, 5, 6 and 7 are supported.

Water reform, and in particular new water legislation is a current Government priority. The amendments suggested in these recommendations will be considered in proposed new legislation. Additional consideration on the type and amount of penalties will need to occur during the drafting process.

If investigations show that specific changes to by-laws need to be made prior to the proposed water resource management legislation being progressed, government will consider amending existing legislation as an interim measure.

Recommendation eight:

The Committee recommends that the 1994 Agreement between the Federation of Western Australian Bushwalkers Inc and the Water Corporation as described in paragraph 5.55 be cancelled.

Government response:

Recommendation 8 is supported.

The Department of Water will ensure recreation stakeholders are engaged in the review of Policy 13, and that their views and needs for now and the future are considered (see recommendations 1 and 9).

Recommendation nine:

The Committee recommends that all future reviews of Statewide Policy 13 should be based on the imperative of source protection and guided by the precautionary principle.

Government response:

Recommendation 9 is supported.

However, in future water resource planning, and in the proposed review of the Department of Water's Policy 13, consideration will be given to the increasing demand for recreation that will accompany the significant population increase predicted for the Perth to Bunbury region. The impact of this population growth on the ongoing availability of reliable, safe, good quality drinking water sources will also be considered.

The Department of Water plans to commence a public review of Policy 13 in 2011. That review will consider the Standing Committee's recommendations and findings.

Recommendation ten:

The Committee recommends that a lead agency be nominated to be responsible for decision making in the Priority 1 area of the Kununurra Water Reserve.

Recommendation eleven:

The Committee recommends that the Government give consideration to relocating the Kununurra bore field to another site to enable the development of the existing Priority 1 area of the Kununurra Water Reserve as a tourist precinct.

Government response:

Recommendations 10 and 11 are supported.

The Department of Planning is the lead agency responsible for planning decisions within the Kununurra Water Reserve. Recreation and tourism issues along a defined area of the foreshore are subject to the agreement of both the Department of Water and Shire of Wyndham East Kimberley as the land is vested in both parties.

The Department of Water will continue to liaise with all parties regarding the ongoing management of the Kununurra Water Reserve, and opportunities for its protection, relocation, development and tourism potential.

Recent advice from the Department of Water on a proposed reduction to the eastern boundary of the existing proclaimed Kununurra Water Reserve (along Lilly Creek Lagoon) would allow for some development to occur, and for new and enhanced recreation and tourism opportunities.

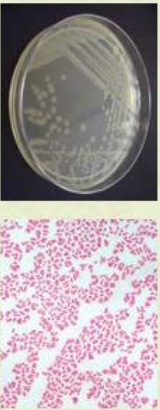
Investigations of alternative water supply sources will be considered in the context of the above proposed boundary change and ongoing discussions with stakeholders.

Appendix D – Pathogen risks brochure

Risks from pathogenic micro-organisms in public drinking water source areas, Department of Water 2008

What are pathogens?

Pathogens are micro-organisms that cause illness in people and animals. Pathogens include bacteria (*Salmonella*, *Escherichia coli*, *Cholera*), protozoa (*Cryptosporidium*, *Giardia*), viruses (hepatitis) and parasitic worms.



Zooglyphs on one night plate and under the microscope (Source: Water Corporation, 2008)

Where do they come from?

Pathogens occur naturally in the environment. Recreational activities can result in the transfer of pathogens from humans into the water body. The smallest amount of human waste (excreta or phlegm) can contain millions of pathogens that may contaminate a drinking-water source. Faecal material containing pathogens can also enter a water source from sewage spills, from waste of domestic animals in the catchment, and from stormwater flowing into a reservoir after rain.

Do people carry them?

Yes, people can carry pathogens without their knowledge. Some people may be carriers of pathogens, but never exhibit any symptoms of illness. Pathogens can be transferred from person to person by the faecal-oral route, usually as a result of poor hygiene practices, or by ingesting contaminated food or water.

Can they survive in the environment?

Yes, the survival of pathogens is dependent on several factors, including temperature, pH, solar radiation, media (i.e. soil, water, faeces), nutrient levels, competing micro-organisms and the availability of a carrier. Research has shown that *Escherichia coli* bacteria can survive months in water bodies. Viruses and protozoa can also survive for long periods in water. Unlike chemical contamination, low numbers of pathogens can quickly multiply to large numbers in the right conditions.

How can you help?

- Follow the advice provided on the signs in public drinking-water source areas.
- Do not come in direct contact with water in a drinking-water reservoir (dam).
- Use the public toilet facilities provided in public access areas.
- Dispose of any rubbish either in collection bins or take it home for disposal.

Further information

For further information on the protection of water sources please contact:

Department of Water
Government of Western Australia


Looking after all our water needs

Department of Water
Water Source Protection Branch
168 St Georges Terrace Perth WA 6000
Telephone: 08 6364 7600
Facsimile: 08 6364 7601
Website: www.water.wa.gov.au
Email: drinkngwater@water.wa.gov.au

This brochure was developed in collaboration with the Department of Health. For information on the health risks associated with pathogens please contact:

Department of Health
Government of Western Australia

Department of Health
Environmental Health Directorate
Telephone: 08 9388 4999
Website: www.health.wa.gov.au



Cryptosporidium parvum under the microscope (Source: Russel Lighty/Vecell, 2008)

Risks from pathogenic micro-organisms in public drinking water source areas

Looking after all our water needs

Department of Water
Government of Western Australia

‘The greatest risks to consumers from drinking water are pathogenic micro-organisms. Protection of water sources and treatment are of paramount importance and must never be compromised.’

Australian drinking water guidelines 5, 2004

Protecting our drinking water

Drinking water is protected in Western Australia using a combination of catchment protection and water treatment, consistent with the *Australian drinking water guidelines 6, 2004*. Reliance on either of these approaches alone is not recommended.



Protecting the catchment area of surface water sources and the recharge area of groundwater sources is the first and most cost-effective barrier to ensure that a safe drinking-water supply is available to consumers now and in future. Other barriers can occur at the water storage and treatment stages in the drinking-water supply system.

➤ Protecting drinking water reservoirs

A best management practice approach is adapted for drinking-water sources to prevent, minimise or manage the risk of physical, chemical and microbiological contamination.

Some land-use developments and recreational activities in drinking-water catchments may be prohibited or restricted to protect water quality and ultimately public health. This approach is applied to many of the drinking-water sources in Western Australia (e.g. Perth Hills catchments) and it is supported by the Department of Health and the Water Corporation.

In surface catchments, legislation and policy can result in a reservoir-protection zone being established to protect drinking-water quality. The protection zone normally extends from the dam wall to a distance of two kilometres from the high-water level of the reservoir back into the catchment. Public access is not supported in a reservoir-protection zone but recreational access is allowed (subject to conditions) to the rest of a drinking-water catchment area consistent with Statewide Policy 13 *Policy and guidelines for recreation within PDW5A on crown land*.

In other Australian cities, such as Sydney, similar approaches to protect drinking-water quality are used. In Melbourne the whole area of a drinking-water catchment is protected and public access is prohibited. However, it is recognised that this approach is not applied uniformly across Australia. For example, in Brisbane some drinking-water catchments are open to the public. Nonetheless, in most states, recreational access is not supported in and around drinking-water reservoirs of strategic importance, but some recreational access is allowed in the broader catchment.



➤ Is swimming in the reservoir away from the dam wall acceptable?

No, research has shown that pathogens can be transported long distances in a water body depending on conditions such as temperature, salinity, turbidity and turbulence (wind and waves). Swimming away from the dam wall or off-take area does not remove the risk of pathogen contamination.

➤ Will water treatment alone provide a safe drinking water supply?

Reliance on water treatment alone is not recommended. Drinking water is expected to meet the health and aesthetic criteria of the *Australian drinking water guidelines 6, 2004*. These guidelines were developed by the National Health and Medical Research Council. In collaboration with the Natural Resource Management Ministerial Council, and recommend a preventative risk-based approach to ensure safe drinking water is delivered to consumers. The guidelines also recognise that no single barrier will be effective against all sources of contamination. A combination of the protection of catchments, appropriate treatment methods, continuous monitoring of barriers (e.g. chlorine analysis) and regular water-quality analysis have ensured the supply of safe, good-quality drinking water to Western Australians for more than 100 years.



Kilgobbin Dam catchment area and reservoir protection zone, where the RZ corresponds to 4.5km of the total catchment area

Appendix E – Public drinking water education and awareness

People who attend a recreation event or construct a recreation facility in a public drinking water source area (PDWSA) need to be advised that they are within a PDWSA and are expected to comply with by-laws under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947*, other relevant legislation and all associated signs.

Signs should be used to mark prohibited zones, such as reservoir protection zones and dieback areas.

We are developing an interactive mapping tool that will enable users to locate their position relative to PDWSA boundaries and protection zones. It can be used in recreation planning or to ensure individuals do not accidentally enter a protection zone. This mapping tool will be available online at www.dwer.wa.gov.au or by contacting us.

Education materials (such as brochures and maps) need to be distributed to contractors and participants to explain the location of any prohibited zones, the importance of drinking water sources and how people can help to protect water quality.

These materials should also include who to contact in an emergency that may pose a risk to the drinking water source, such as a fuel spill. An example of possible content to be distributed is given below. This information needs to be activity- and PDWSA-specific and tailored to the individual proposal. Proponents should submit any proposed educational material to the Water Corporation or DWER along with their recreation proposals.

Example education material - Recreation within public drinking water source areas

This activity occurs within a public drinking water source area. Public drinking water sources are protected to prevent contamination of drinking water and to maximise the protection of public health. Please comply with by-laws and all associated signs.

The Department of Water and Environmental Regulation and the Water Corporation manage public drinking water source areas, in close consultation with the Department of Biodiversity, Conservation and Attractions. The use of this area has been supported by the land manager and this support includes the condition that we will help protect water quality.

Reservoir protection zones

In surface water public drinking water source areas, legislation and policy can result in a reservoir protection zone being established to protect drinking water quality. The protection zone normally extends from the dam wall to a distance of two kilometres from the high-water level of the reservoir back into the catchment. Public access is not supported in a reservoir protection zone (except on 'public roads'). Please be aware of where the reservoir protection zone is to prevent accidental access. In some reservoir protection zones, penalties may be applied for public access.

Dispose of waste responsibly

Please use designated toilet facilities and rubbish bins. Where ablution facilities are not available, faecal material should be buried at least 30 centimetres underground and at least 100 metres away from waterways.

Report pollution

Please report pollution, illegal activity or damage to facilities to ensure contamination is prevented. Any fuel, chemical spill or leak that escapes containment should immediately be reported to this DWER's Pollution Watch Hotline (1300 784 782) and the Water Corporation (13 13 75).

Do not come into contact with streams or waterbodies

Pathogens are the biggest risk to our drinking water sources. The smallest amount of human waste (excreta or phlegm) can contain millions of pathogens that may contaminate a drinking water source. Therefore please do not come into contact with any water when you are within a public drinking water source area. Research has shown that pathogens can be transported long distances in a water body depending on conditions such as temperature, salinity, turbidity and turbulence (wind and waves). Unlike chemical contamination, low numbers of pathogens can quickly multiply to large numbers in the right conditions. Therefore even very far away from the reservoir or off-take area, coming into contact with water, including streams or puddles, poses a risk of pathogen contamination. Pathogen risks in our drinking water sources need to be prevented to the maximum extent possible to avoid the

consequences of illness, hospitalisation or death. These consequences can even occur in developed countries like Australia.

Treatment is not the solution

Reliance on water treatment alone is not acceptable. Drinking water is expected to meet the health and aesthetic criteria of the *Australian drinking water guidelines*. These guidelines were developed by the National Health and Medical Research Council and the Natural Resource Management Ministerial Council, and recommend an approach based on preventing risks to ensure safe drinking water is delivered to consumers. The guidelines also recognise that no single barrier (a method of addressing contamination such as chlorination) is effective against all sources of contamination. A combination of protecting catchments, having appropriate treatment methods, continuously monitoring the effectiveness of barriers and conducting regular water quality analysis have ensured the supply of safe, good quality drinking water to Western Australians for more than 100 years.

Leave no trace

Please follow the *Leave No Trace Australia* principles and take all rubbish with you:

- Plan ahead and prepare.
- Travel and camp on durable surfaces – camp in designated areas.
- Dispose of waste properly – leave only footprints.
- Leave what you find.
- Minimise campfire impacts – comply with any relevant fire restrictions.
- Respect wildlife.
- Be considerate of your hosts and other visitors.

More information is available online at leave no trace Australia, www.lnt.org.au.

Shortened forms

List of shortened forms

ADWG	<i>Australian drinking water guidelines</i>
ANZECC	Australian and New Zealand Environment Conservation Council
NHMRC	National Health and Medical Research Council
NRMMC	Natural Resource Management Ministerial Council
PDWSA	public drinking water source area
RPZ	reservoir protection zone
WHPZ	wellhead protection zone
WQPN	water quality protection note

Units of measurement

ha	hectares	A measure of area, 1 ha equals 10 000 m ² .
km	kilometres	A measure of distance, 1 km equals 1000 m.
km²	square kilometres	A measure of area.
m	metres	A measure of distance.
m²	square metres	A measure of area.
RU	Risk exposure	Risk exposure in units.

Glossary

Abolished	To abolish/repeal a PDWSA means to remove the government's legal constitution of the PDWSA, under the <i>Metropolitan Water Supply Sewerage and Drainage Act 1909</i> (WA) or the <i>Country Areas Water Supply Act 1947</i> (WA). See deproclaim.
Aquifer	A geological formation or group or formations able to receive, store and transmit significant quantities of water.
Australian drinking water guidelines	The <i>National water quality management strategy: Australian drinking water guidelines 6, 2011 - Version 3.4 Updated October 2017</i> (ADWG; NHMRC & NRMCC 2011) outlines acceptable criteria for the quality of drinking water in Australia (see <i>References</i>).
Barrier	A preventative measure put in place to achieve a necessary outcome or improvement (also see <i>multiple barriers</i>).
Bore	A narrow, lined hole drilled into the ground to monitor or draw groundwater (also called a well).
Bore field	A group of bores to monitor or withdraw groundwater (also see <i>wellfield</i>).
Catchment	The area of land from which rainfall run-off contributes to a single watercourse, wetland or aquifer. This term is also sometimes used to describe the recharge area of a groundwater source.
Catchment area	An area constituted under the <i>Country Areas Water Supply Act 1947</i> or the <i>Metropolitan Water Supply, Sewerage, and Drainage Act 1909</i> for the purposes of protecting a drinking water supply.
Confined aquifer	An aquifer that is overlain by relatively impermeable rock or clay that limits movement of water into and out of the aquifer. Confined aquifers are usually deeper under the ground than unconfined aquifers. Groundwater in a confined aquifer is under pressure and will rise up inside a bore hole that is drilled into the aquifer.
Constitute	Define the boundaries of any catchment area or water reserve by Order in Council under the <i>Country Areas Water Supply Act 1947</i> or by Proclamation under the <i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i> .

Contamination	A substance present at concentrations exceeding background levels that presents – or has the potential to present – a risk of harm to human health, the environment, water resources or any environmental value.
Crown land	Refers to all land except alienated land (includes reserved and leased crown land, land owned or vested in government agencies, tidal waters, reclaimed land, river beds and lakes).
Deproclaim	The legal term for deproclaim is to abolish or repeal. To abolish/repeal a PDWSA means to remove the government's legal proclamation of the PDWSA, under the <i>Metropolitan Water Supply Sewerage and Drainage Act 1909 (WA)</i> or the <i>Country Areas Water Supply Act 1947 (WA)</i> .
Designated sites	Designated sites are tracks, trails, areas or other recreation facilities that have been approved by the Department of Biodiversity, Conservation and Attractions, or the Department of Water and Environmental Regulation, for a specific purpose in an approved state government management plan or shown to be existing approved and designated through other government documentation and evidence. Those management plans must be consistent with Policy 13. They are managed in accordance with water quality protection principles, such as regular maintenance, toilet provisions and routine surveillance.
Drinking water	Water suitable to be consumed by humans. Primarily intended for human consumption, but can have other uses.
Drinking water source protection report	A report on water quality hazards and risk levels within a public drinking water source area; includes recommendations to avoid, minimise, or manage those risks for the protection of the water supply in the provision of safe drinking water supply.
Existing recreation	<p>'Existing' recreation is defined as events and facilities that were approved, built and/or regularly occurring as at September 2012. To continue to be considered as 'existing', facilities and events can be maintained and upgraded but their capacity and designated use cannot be increased.</p> <p>It must be defined in a state government plan endorsed by the relevant land manager to show approval prior to September 2012. However, there is flexibility to be able to accept recreation that can be demonstrated to be existing approved as at September 2012 through other state government documentation and evidence. These cases will be assessed on their merits.</p>

Fractured rock aquifer	An aquifer where groundwater is present in the fractures, joints, solution cavities, bedding planes and zones of rocks. Fractured rock aquifers are highly susceptible to contamination from land uses when aquifers crop-out or sub-crop close to the land surface.
Game animal	All animals that are hunted for sport, food or profit.
Gazette	Publication within the government Gazette of Western Australia of the Order in Council or Proclamation defining the boundaries of any catchment area, water reserve or underground pollution control area.
Health guideline value	The concentration or measure of a water quality characteristic that, based on current knowledge, does not result in any significant risk to the health of the consumer over a lifetime of consumption (NHMRC & NRMCC 2011).
Historical event	Events that have not been held consistently within PDWSAs (such as less than three times) at set intervals will be considered 'historic' events, not as 'existing'.
Hydrocarbons	A class of compounds containing only hydrogen and carbon, such as methane, ethylene, acetylene and benzene. Fossil fuels such as oil, petroleum and natural gas all contain hydrocarbons.
Karst topography	Geologic region typified by the effects of solution of rocks by water. Rock types most likely to be affected are limestone, dolomite, gypsum and salt beds. Features produced are caverns, collapse features on the surface (sink holes), underground rivers and zones of lost circulation for well drillers.
Multiple barriers	The use of more than one measure as a barrier against water quality contamination hazards. Examples of multiple barriers include: closed catchments; large reservoirs with long detention times; coagulation, flocculation, sedimentation and filtration; disinfection; use of multiple storage reservoirs; extraction management; disinfection of water before and during its time in the distribution system.
New event or facility	An event or facility that was not existing and approved as of September 2012. 'Existing' facilities and events that have increased capacity, designated use or participants may be assessed as new.

Off-road driving	Driving any motorised vehicle (including licenced vehicles) on tracks or roads that exist for the purpose of fire control, mining, forestry or infrastructure access/maintenance, driving through the bush (making your own track) or driving on an approved 4WD track.
Pathogen	A disease-producing organism that can cause sickness and sometimes death through the consumption of water, including bacteria (such as <i>Escherichia coli</i>), protozoa (such as <i>Cryptosporidium</i> and <i>Giardia</i>) and viruses.
Power-assisted pedal cycles (PAPC):	A power-assisted pedal cycle (PAPC) is a bicycle with a motor providing assistance when the rider is pedalling. In Western Australia PAPC can be used by people aged 16 years and older on shared paths with the power engaged. To be compliant, a PAPC must meet Department of Transport legislation including that it must have an electric motor, a maximum power output of 250 watts and other requirements available online at www.transport.wa.gov.au .
Periodic events	Periodic events are held on at regular intervals. To be considered 'existing', evidence needs to be provided that the events were approved to occur on a regular basis within PDWSA (more than three times), at any consistent interval prior to September 2012 (such as every five years, bi-annually).
Permit	An authorisation, licence, or equivalent control document issued by an approved agency to implement the requirements of a regulation or by-law (such as a permit issued under the by-laws of the <i>Metropolitan Water Supply Sewerage and Drainage Act 1909</i> to allow a recreation event within the a public drinking water catchment).
Proclamation	Made under the Governor of Executive Council and published in the government Gazette to constitute or abolish a water reserve, catchment area or underground water pollution control area under section 13 and 57A of the <i>Metropolitan Water Supply, Sewerage, and Drainage Act 1909</i> .
Public drinking water source area	The area from which water is captured to supply drinking water. It includes all underground water pollution control areas, catchment areas and water reserves constituted under the <i>Metropolitan Water Supply, Sewerage, and Drainage Act 1909</i> or the <i>Country Areas Water Supply Act 1947</i> .

Public road	<p>'Public roads' are cleared and graded roads, (with a gravel or bitumen/cement surface), that are subject to regular maintenance. 'Public roads' do not include tracks or trails for the purposes of fire control, mining, forestry or infrastructure access/maintenance because public access may not be allowed on these roads. Please note that signs or barriers (such as gates) can limit or prohibit access on any roads (including 'public roads' or 'sealed bitumen roads'). Where these signs or barriers exist, that road is no longer considered to be available for public use.</p>
Recharge area	<p>An area through which water from a groundwater catchment percolates to replenish (recharge) an aquifer. An unconfined aquifer is recharged by rainfall throughout its distribution. Confined aquifers are recharged in specific areas where water leaks from overlying aquifers, or where the aquifer rises to meet the surface.</p>
Recreation	<p>A wide range of leisure, pastime or entertainment pursuits, including bushwalking, orienteering, swimming, boating, fishing, camping, horse-riding and four-wheel driving. It also includes group outings and commercial activities, such as camel trails, llama walks and car rallies.</p>
Recreation area	<p>Recreation facilities may be considered as an 'area', rather than an individual track or trail. A recreation area recognises where facilities occur within a localised area (e.g. where many tracks and trails occur in proximity) if they are currently managed or should best be managed is as one 'area'. This will be subject to an IACWG case-by-case assessment. These 'areas' must be defined in a state government management plan (e.g. a gazetted off-road driving area or designated mountain bike area). However, there is flexibility to be able to accept 'areas' that can demonstrate existing approvals through other state government documentation and evidence.</p>
Recreation event	<p>An organised recreation activity that has more than 25 participants under the control of a person or organisation. Proposed events need to apply to the appropriate land manager for approval to recreate in a PDWSA.</p>

Recreation facility	<p>A built installation, building or form that provides a particular service to enable a recreation activity, such as camp sites, car parks, food and drink services, toilets, tracks or trails including built or temporary modifications.</p> <p>It excludes a vehicle or pop up tent required for occupational health and safety/first aid purposes, which distributes basic supplies (such as water, snacks or first aid) or is a checkpoint for contestants. However, if it supplies meals, merchandise or alcohol or provides a recreation function then it would be considered a 'recreation facility'.</p>
Reservoir	<p>A dam, tank, pond or lake that captures water from a surface catchment to create a water supply source.</p>
Reservoir protection zone	<p>A buffer measured from the high water mark of a drinking water reservoir (usually 2 km), and inclusive of the reservoir. This is referred to as a prohibited zone under the Metropolitan Water Supply, Sewerage, and Drainage Act By-laws 1981.</p> <p>The reservoir protection zone (RPZ) does not extend outside the boundary of the constituted PDWSA (downstream of a PDWSA dam wall). DWER noted in its advice to the Standing Committee on Public Administration that, 'at times (such as in small catchments or where key physical boundaries can be substituted) the two kilometre boundary is not a practical size and to address this matter the DWER will ask for the boundary in any new legislation to be set at two kilometres or other distance approved by the Minister for Water during the publicly consulted drinking water source protection plan process.'</p> <p>Metropolitan area RPZs prohibit public access (except along public roads) to protect public drinking water reservoirs from contamination. RPZs are recommended for PDWSAs throughout WA in DWER's publicly consulted drinking water source protection reports. Consistent with government's support for the 2010 Parliamentary Committee report, a by-law to legislatively establish RPZs across Western Australia in country areas is currently being drafted for further consultation.</p>
Rotational event	<p>Rotational events require variation in location (such as orienteering or rogaining where familiar settings are detrimental to the activity). These are supported to continue to rotate location within PDWSAs provided they do not increase in number of events or capacity from September 2012 levels.</p>

Sealed bitumen road	<p>A 'sealed bitumen road' is a sealed bitumen road and includes the area either side of the bitumen, gazetted as road reserve.</p> <p>A sealed bitumen road must also be defined by proclamation and included as a sealed road on the Main Roads WA Road Information Mapping System. These roads are available for public viewing on the Main Roads WA Road Information Mapping System under Road Hierarchy available online at www.mainroads.wa.gov.au.</p>
September 2012 levels	<p>Recreation events and facilities as approved at September 2012. To continue to be considered as 'existing', facilities and events can be maintained and upgraded but their capacity and designated use cannot be increased.</p> <p>It must be defined in a state government plan endorsed by the relevant land manager to show approval prior to September 2012. However, there is flexibility to be able to accept recreation that can be demonstrated to be existing approved as at September 2012 through other state government documentation and evidence. These cases will be assessed on their merits.</p>
Sole supply	<p>The only source of drinking water for a given town or community. These sources are important to protect as there are no other current options to supply drinking water for that location.</p>
Treatment	<p>Application of techniques such as settlement, filtration and chlorination to render water suitable for specific purposes, including drinking and discharge to the environment.</p>
Unconfined aquifer	<p>An aquifer where the upper boundary is the water table and therefore is in contact with the atmosphere through the pore spaces in the unsaturated zone. Typically (but not always) it is the shallowest aquifer at a given location.</p>
Underground water pollution control area	<p>Any area defined under the <i>Metropolitan Water Supply Sewerage and Drainage Act 1909</i>, in which restrictions are put on activities which may pollute the groundwater.</p>
Vehicle	<p>Any receptacle, or means of transport, in which something is carried or conveyed, or travels, propelled by any means, other than animal or human power.</p>
Water body	<p>A water course, lake, lagoon, swamp, marsh, conduit or other water works, the water of which contributes to the public water supply system.</p>

Water reserve	An area constituted under the <i>Country Areas Water Supply Act 1947</i> or the <i>Metropolitan Water Supply, Sewerage, and Drainage Act 1909</i> for the purposes of protecting a drinking water supply.
Water resources	Water in the landscape (above and below ground) with current or potential value to the community and the environment.
Water quality	Collective term for the physical, aesthetic, chemical and biological properties of water.
Well	A hole dug or drilled into an aquifer to monitor or withdraw groundwater. The term includes drilled bores as a specific type of well (see Bores). Household wells are commonly termed bores.
Wellhead	The top of a well (or bore) used to draw groundwater.
Wellhead protection zone	Usually declared around wellheads in public drinking water source areas to protect the groundwater from immediate contamination risks.

References

- Department of Biodiversity, Conservation and Attractions 2017, *Corporate policy statement 18 – Recreation, tourism and visitor services*, Government of Western Australia, Perth, available at www.dbca.wa.gov.au.
- Department of Water & Department of Health 2008, *Risks from pathogenic micro-organisms in public drinking water source areas*, Government of Western Australia, Perth, available www.dwer.wa.gov.au.
- Department of Water 2016, Strategic policy: *Protecting public drinking water source areas in Western Australia*, Government of Western Australia, Perth, available www.dwer.wa.gov.au.
- Government of Western Australia 1909, *Metropolitan Water Supply, Sewerage, and Drainage Act*, State Law Publisher, Perth, available www.slp.wa.gov.au.
- 1911, *Health (Miscellaneous Provisions) Act*, State Law Publisher, Perth, available www.slp.wa.gov.au.
- 1947, *Country Areas Water Supply Act*, State Law Publisher, Perth, available www.slp.wa.gov.au
- 1986, *Environmental Protection Act*, State Law Publisher, Perth, available www.slp.wa.gov.au.
- Standing Committee on Public Administration 2010, *Report 11: Recreation activities within public drinking water source areas*, Legislative Council, Perth, available www.parliament.wa.gov.au.
- National Health and Medical Research Council (NHMRC) & Natural Resource Management Ministerial Council (NRMMC) 2011, *National water quality management strategy: Australian drinking water guidelines 6, Version 3.4 Updated October 2017*, Australian Government, Canberra, available www.nhmrc.gov.au.
- World Health Organization 2011, *Guidelines for drinking-water quality*, 4th edn, World Health Organization, Geneva, available www.who.int/.

Further reading

- Board M (MLA Member for Jandakot and Chairman of the Select Committee) 1994, *The Select Committee on Metropolitan Development and Groundwater Supplies – Report*, Legislative Assembly, Perth, Western Australia.
- Department of Water 2009, Water quality protection note 36: *Protecting public drinking water source areas*, Government of Western Australia, Perth, available www.dwer.wa.gov.au.
- 2011, Living and working in public drinking water source areas, Government of Western Australia, Perth, available www.dwer.wa.gov.au.
- Hrudey, SE & Hrudey, EJ 2004, *Safe drinking water – Lessons from recent outbreaks in affluent nations*, IWA Publishing, London.
- National Health and Medical Research Council (NHMRC) & Natural Resource Management Ministerial Council (NRMMC) 2004, *Water made clear – A consumer guide to accompany the Australian drinking water guidelines*, Australian Government, Canberra, available www.nhmrc.gov.au.
- Sharp Hon C (MLC and Chairman of the Standing Committee) 2000, *Report of the Standing Committee on Ecologically Sustainable Development in relation to the quality of Perth's water supply*, Legislative Council, Perth, Western Australia, available www.parliament.wa.gov.au.

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