

# Water facts 5



WATER AND RIVERS COMMISSION MAY 1998

## Taking water from streams and lakes

Information for landholders

Properties that have a river or stream running through them are highly prized in Western Australia. Rivers, streams and lakes are attractive to people for many reasons including environmental, aesthetic, recreational and cultural values. Waterways may be valuable as a source of water supply for domestic and stock use, irrigating agricultural crops, or as a vital component of an industrial or commercial activity.

The Water and Rivers Commission recognises these diverse community values and encourages owners of properties next to or near streams or lakes to adopt a stewardship role to protect these precious water resources.

The information in this Water Facts sheet mainly refers to the current *Rights in Water and Irrigation Act 1914*. It is proposed by the Government to amend this Act some time in 1998.

However, it is important that the information in this Water Facts sheet be made freely available to the community at this time to explain the rights and responsibilities of people who draw water from streams, rivers and lakes and the associated issues involved. Much of this information will remain valid and important throughout the water law reform process and following implementation.

### The nature of river flow

River flow is governed by seasonal rainfall patterns, runoff generated in the river system's catchment, and groundwater discharge. Western Australia is divided into four drainage divisions (see Figure 1). The climate and characteristics of river flows in each of these areas and the implications they have on the use and capture of water are briefly explained in Boxes 1 - 4.



*Irrigation of a horticultural crop from a farm dam in the Warren River catchment.*

### The law on water rights

The law relating to the rights to surface water is contained within the *Rights in Water and Irrigation Act 1914* (RWI Act) which is administered by the Water and Rivers Commission.

These rights differentiate between the rights of the Crown, those of private landholders and the right of public access to take water from a watercourse or lake. This is mainly dealt with under two divisions in the RWI Act.

A river system or lake may be "proclaimed" under Division 1 to allow better management control by government. Rivers or areas not proclaimed are covered in Division 2 of the Act.

These old laws, now approaching 85 years of age, were written to establish landholders' fundamental rights to water in the State's early development. The Act made provision for the conservation and utilisation of water for irrigation and established a water resource management system that is simplistic and out of date with modern requirements.

The Act fails to recognise or deal with the myriad of water uses other than irrigation, or the need to manage the environmental and social impacts of water use. Most importantly, it is very weak in areas of equity between uses and users.

### Proposed reform of the *Rights in Water and Irrigation Act 1914*

In 1994 the Council of Australian Governments, more commonly referred to as "COAG" and comprising the Prime Minister, Premiers of every State and Chief Ministers of the





two territories, considered the future of the nation's management of water resources.

The State and the Commonwealth Government have committed themselves to reform of the water industry, especially to more formally defining private property rights in water and promoting competition in an attempt to increase the value of water use.

Proposed amendments to the RWI Act will follow a public consultation process now in progress, but will meet the needs of modern water resources management.

The next phase will include the drafting of a Bill for consideration by parliament to change the existing legislation. This will help to focus the debate and allow people to understand the impact of the changes.

An important principle is that local communities, where they want to be involved, should have a say in the management of water resources. The aim is to develop a flexible, community-based system which will take the management of one of the State's most valuable assets - water - well into the next century.

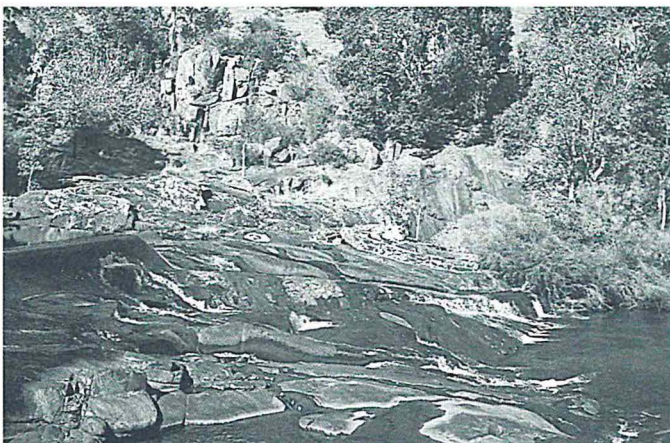
### Environmental water provisions

Today, water resource management needs to consider the impact that the use of water has on the environmental integrity of the ecosystems of our rivers and lakes. The Water and Rivers Commission is progressively ensuring that water dependent ecosystems are protected by water allocation and surface water licensing decisions.

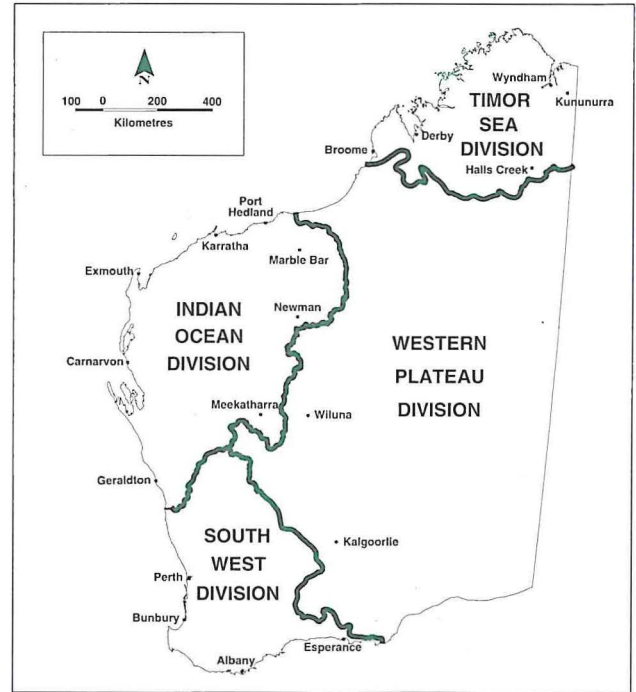
### Rights and responsibilities of landholders in proclaimed surface water areas

In proclaimed surface water areas, the right to the use, flow and control of surface waters is vested in the Crown. The Water and Rivers Commission has licensing and control powers over watercourses, lakes, lagoons, swamps and marshes within these areas.

The jurisdiction of the RWI Act does not include lakes totally contained within a single property or water rising in springs



*The Serpentine River system is significant to Aboriginal people for its association with the Waugal and as a traditional source of food and means of access.*



*Fig.1 Drainage Divisions of Western Australia.*

remote from a watercourse until the water passes through a property boundary or meets a watercourse. Where springs rise within the bed of the watercourse (including that underneath a dam built on the stream to store water) then such flow comes under the jurisdiction of the RWI Act.

The Act defines "riparian rights" for those landholders where there is a stream flowing through their property or the property abuts the watercourse and there is no publicly reserved land between the watercourse and the private property. This gives the landholder the right to take water free-of-charge for specific non-commercial purposes. The riparian right applies also to a lake which is partly situated on a property.

Taking water in excess of riparian rights or for commercial use may require a licence. Licensing is not carried out in every proclaimed surface water area but is introduced when there is an increasing demand by landholders for water from the watercourse. The licensing system is used by the Water and Rivers Commission to manage that demand.

### How much water can I take as a riparian right?

The RWI Act doesn't specify the amount you can take as a "riparian right", only the purpose for which you can take it. Those purposes are: domestic use in and outside the house, stock watering, and in some cases the irrigation of a household garden of a limited area.

Unless the property has a significant number of stock, it is the Water and Rivers Commission's view that the amount taken as riparian rights, and pumped directly from the watercourse or lake, should not exceed the regional estimates provided here:

South west	1500 kilolitres per year
South coast	1200 kilolitres per year
North and north west	2000 kilolitres per year



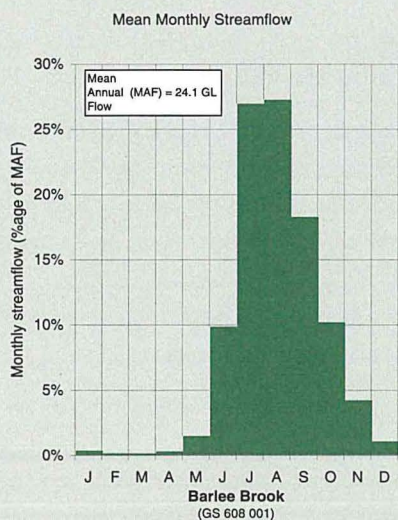


### Box 1 Rivers between Esperance and Geraldton (South-West Division)

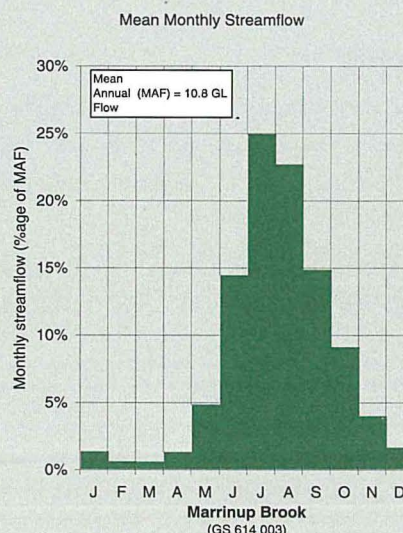
The South-West has a Mediterranean climate characterised by cool, wet winters and hot, dry summers. Rainfall is generally more reliable than in any other area of the State, but is still variable and highly seasonal. In areas of the south coast over 80% of rainfall occurs between May and October. River flow is even more seasonal with over 90% of flow occurring between June and October as shown in Graphs 1 and 2. This is due to the autumn and early winter rains infiltrating the soil and replacing the moisture lost to evaporation. Further winter rainfall then generates runoff from the

catchment which translates into streamflow. Then in late spring the combined effect of increased evaporation and decreased rainfall result in a rapid decrease in streamflow.

Without the provision to store streamflow in a dam on private properties, rivers and streams are unreliable for sustained irrigation purposes during summer. Streamflow may not meet stock and domestic needs through summer and early autumn, particularly when the previous winter rainfall has been below average.



Graph 1



Graph 2

A riparian right is a right to take water free-of-charge for specific purposes. **However, it is not a guarantee that water will always be available to take from the stream or lake.**

A stream flowing through your property may only flow at certain times of the year. If you don't have a reticulated supply connected to your property, it is advisable to collect rainwater runoff from your roof to supplement your water supply. This may be in addition to using groundwater where available or storing wet season streamflow.

How do I know if my property is located in a proclaimed surface water area?

It may not be obvious that your property is in a proclaimed surface water area. If you have bought a property for which the previous owner had obtained a surface water licence, you are required to re-apply for a surface water licence in your name. Generally, as long as the water from the river or stream has not been fully allocated and you propose to carry on the same commercial irrigation activity or do not require an increase in the volume of water, a licence will be granted. If the application does involve an increase in the water previously allocated for the property, it will be treated as a new application.

Check with the Water and Rivers Commission office in your region as to whether your property is located in a proclaimed surface water area and whether you need to apply for a surface water licence.

#### Obtaining a surface water licence

Application forms are available from regional offices of the Water and Rivers Commission. Your application may involve approval to pump directly from the watercourse or to divert water into a dam, which may be located on or off the watercourse. For a dam, you will be asked to supply specific details about the capacity of the dam and some details of its construction. Information on the size of the pump and motor is required where it is proposed to pump directly from the stream.

The Water and Rivers Commission will also require information on the proposed use of the water, the proposed area of irrigation and an estimate of the quantity of water required. Depending on the size of the activity proposed, and the degree of environmental impact it may have, there may also be a requirement to submit the proposal to the Environmental Protection Authority for assessment.

The Water and Rivers Commission is required under the RWI Act to advertise applications for surface water licences in a local newspaper so that neighbouring riparian landowners are aware of your intention to take water.

**It is to the landowner's advantage to obtain approval through the licensing process to take water.** It formally establishes access to the water which the Water and Rivers Commission will then take into account when assessing future applications to take water from the watercourse or lake.





## Policy or plan

Many proclaimed areas will have a policy or plan which defines the rules by which water is allocated for that watercourse. In assessing the application, the Water and Rivers Commission will give consideration to the availability of the water you require, the utilisation of best management practices in the use of the water and the impact that use will have on the watercourse and other users. For some proclaimed areas, local advisory committees provide advice to the Water and Rivers Commission on licence applications.

## Licence approval

To expedite the approval process, the Water and Rivers Commission may discuss your application with you, suggest alternatives or modifications and negotiate appropriate conditions.

An approved licence will state the amount of water you can take in one year and the purpose for which the water is to be used. The licence may list certain conditions you are required to comply with to ensure the protection of the watercourse and other water users. The term of the licence may vary from one to five years depending on the proclaimed area. Annual licence fees are payable in some proclaimed surface water areas.

## What can I do if I am unhappy with the Water and Rivers Commission's decision?

If your application for a surface water licence is refused or you

wish to dispute any of the conditions associated with a licence that is issued, you have a right to appeal to the Minister for Water Resources. This needs to be done within 30 days of receipt of advice. Before progressing to a formal appeal, there is an opportunity for a mediation process. The appeal involves a formal hearing where the licence applicant and a representative from the Water and Rivers Commission present submissions to a panel of three people. The panel is made up of an independent person (usually a retired magistrate) and a person nominated by each party to represent them.

## What happens if I want to carry out commercial irrigation in an area which is not currently licensed?

If you haven't already done so, check with the local government authority that the activity you propose to carry out is permitted under the local town planning scheme. Depending on the size of the activity proposed and the degree of environmental impact it may have, there may also be a requirement to submit the proposal to the Environmental Protection Authority for assessment.

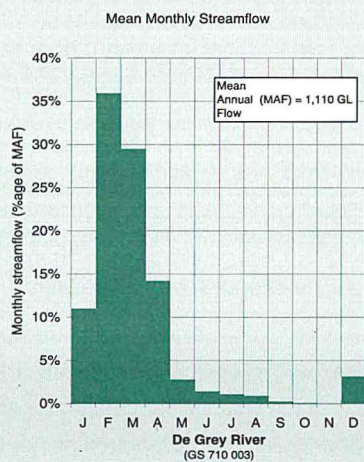
You should contact the regional office of the Water and Rivers Commission to discuss the proposed development and the amount of water required. The Commission may require you to formally apply for a licence or, if a licence is not required, may recommend certain measures for you to take so that your use of the water will not have any adverse impacts on the watercourse or other landholders using the watercourse.

### Box 2 Rivers between Geraldton and Port Hedland (Indian Ocean Division)

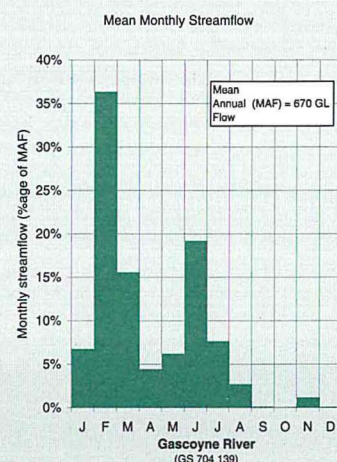
From Geraldton north to Port Hedland, the climate changes from Mediterranean to sub-tropical with a large area between experiencing a semi-arid to arid climate. Extended droughts are common throughout the region and tropical cyclones are common in the north and east of the region during summer. Several years with no flow in the division's northern rivers may be broken by a large flood, resulting from a cyclone. This leads to erratic stream flow which occurs for only short periods of time as shown in Graph 3. The streams in the south and west of the region tend to flow each year during the winter months. The central portion of

the region has two distinct flow periods resulting from runoff generated during the summer tropical cyclones and the winter depressions originating from the south-west (Graph 4). For the landholder there are technical difficulties involved in effectively capturing streamflow.

Climatic and streamflow characteristics generally mean that the rivers are unreliable as a perennial water supply. There are numerous river pools along the main rivers of the region which may be used for stock watering. However, their reliability is low and groundwater is often a more viable alternative.



Graph 3



Graph 4





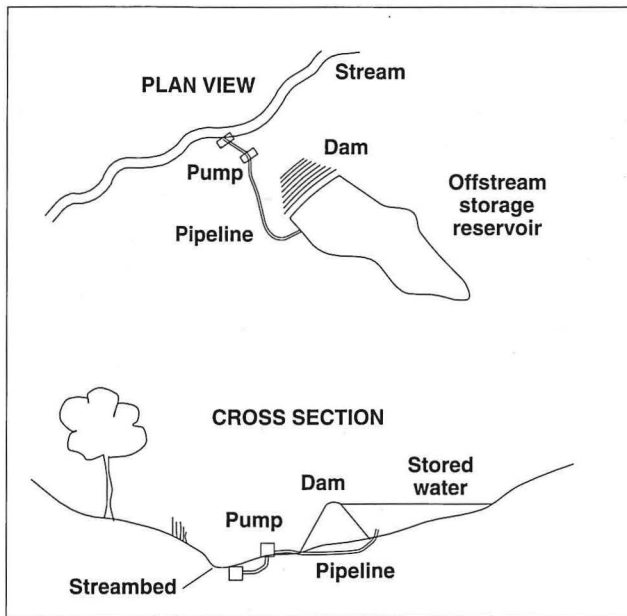


Fig.2 Dam built off-stream.

### Interference and obstruction of flow

It is an offence to interfere with a watercourse unless authorised under the RWI Act. Interference includes building a dam and the deliberate filling in, or alteration of the watercourse channel. This provision does not prevent the construction of a dam on-stream, only that it must be first approved by the Water and Rivers Commission.

The dumping of foreign materials, such as gravel, mud or rubbish, into a watercourse where it is likely to obstruct the flow of the stream is also an offence under this Act.

What are the rules on building dams in proclaimed areas? .

### Impact on watercourse

During dam construction clearing can destroy riparian vegetation. Dams tend to collect sediments and this prevents the transportation of silt downstream. The impedence to the natural flow of water can also have a negative impact on small animals living in the water as well as depriving downstream users of water.

However, it makes good sense to store water to use in the drier season when it is more plentiful during the wet. The Water and Rivers Commission prefers that a dam be built off-stream to prevent the negative impacts of a dam built in the watercourse (see Figure 2). However, because of the landform on some properties, the Water and Rivers Commission recognises that a watercourse might provide the only suitable site for collecting and storing water.

### Approvals

If you propose to build a dam on a watercourse, you are required to consider the impact it will have. Some of these

impacts are reflected in the approvals which may be required from various government agencies:

- First contact the local government authority to find out whether they require you to submit a development application to build a dam anywhere on your property.
- Depending on the likely environmental impact of the dam, approval may be required from the Environmental Protection Authority.
- Under the RWI Act, in proclaimed areas you will require approval from the Water and Rivers Commission to obstruct the streamflow by building a dam on a watercourse. Where the diverting of water from the watercourse requires a licence, approval to obstruct the streamflow will be covered in the licence.
- If you are in a declared waterways management area, you may also require approval from the Management Authority. Advice can be obtained from the Water and Rivers Commission office in your region.
- If the proposed dam requires any clearing or will flood any areas of indigenous vegetation in controlled land as defined under the *Country Areas Water Supply Act 1947* (Wellington Dam Catchment Area, Harris River Dam Catchment Area, Mundaring Weir Catchment Area, Denmark River Catchment Area, Kent River Water Reserve and Warren River Water Reserve), a licence to clear is required from the Water and Rivers Commission.
- Clearing of areas greater than one hectare elsewhere in the State requires the approval of the Commissioner for Soil Conservation, under the *Soil and Land Conservation Act 1945*, through Agriculture Western Australia.

### Liability under common law

There is no specific state legislation dealing with dam construction and safety requirements. As part of the considerations of building a dam, you need to be fully aware of the legal implications under common law. If a dam fails, then the owner of that dam may be liable for the cost of damage including personal injury, property and stock loss or damage, loss of income, and road repairs and restoration of the stream channel. It is in your best interests to seek appropriate insurance cover.

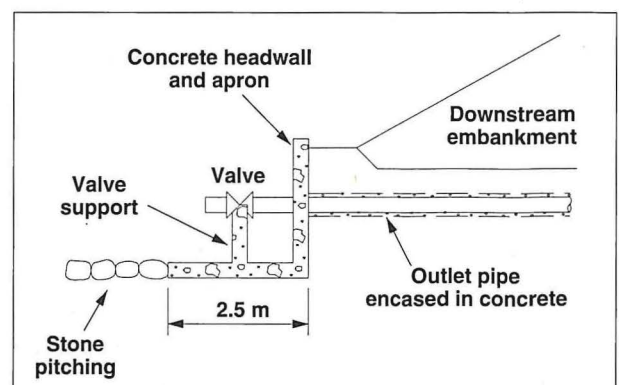


Fig.3 Detail of outlet pipe to pass on low stream flow.





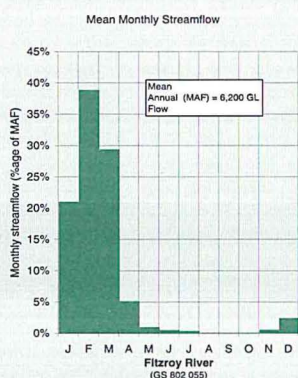
### Box 3 Kimberley Rivers (Timor Sea Division)

In the Kimberley region, the climate is tropical consisting of two dominant seasons separated by short transitional periods. About 90% of the annual rainfall occurs between November and April while the remainder of the year is very dry as shown in Graphs 5 and 6. The evaporation rate throughout the region is extremely high and the tropical cyclones common to the division can cause extensive flooding.

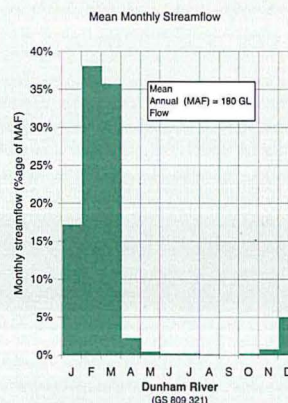
Despite the streamflow being irregular, all major rivers flow every year. The streamflow is generally confined to the wet, summer

months and there is typically no flow through the dry winter period. With the exception of some rivers in a high rainfall zone in the extreme north, most rivers stop flowing before the onset of the following wet season.

In this region, landholders may experience technical difficulties in capturing streamflow and groundwater might be a more viable alternative. Depending on the slope of the river bank, access to the river flow is opportunistic for domestic, stock or commercial use.



Graph 5



Graph 6

#### Water and Rivers Commission requirements

The capacity of a dam to store water for the riparian right purposes of domestic use and stock watering will generally not need to exceed 5,000 kilolitres. This volume takes into account the typical effect of evaporation on the dam storage. A volume greater than this is likely to be outside riparian entitlements within a proclaimed area and may require a licence from the Water and Rivers Commission. Permission is required from the Water and Rivers Commission to construct a dam on-stream.

Whatever the size of a dam built on the stream, it must have the ability to by-pass or pass on the river flows that may occur during the dry season (defined as 1 November to 30 April in the south-west of the State). This can be achieved by an underwall pipe with a gate valve attached or by a channel around the storage to divert the flow during these months. Detail of an outlet pipe to enable low flows to be passed on is shown in Figure 3.

During construction of any storage, every effort needs to be made to prevent siltation of the watercourse from construction materials. Dam discharge and overflow water must be returned to the watercourse before leaving the property.

Stored water must not be allowed to encroach onto other properties or public land without a legally enforceable agreement. The only way such an agreement can be binding when property ownership changes is for the agreement to be noted on the Certificate of Title of the affected property.

#### Dam design and construction guidelines

Guidelines are available for building low hazard earth-fill dams within the range of 5 - 10 metres in height on streams within the Warren and Donnelly rivers catchment areas. These

guidelines also contain a sample specification which details the work to be done and the minimum acceptable standards to apply. They may be a useful guide for other areas of the south-west with similar rainfall patterns and soil types.

*Guidelines for the design and construction of small farm dams in the Warren area* are available from the South-West Region of the Water and Rivers Commission. For proposals to construct high hazard dams, dams greater than 10 metres high or outside the Warren area, it is recommended in all cases that you seek appropriate professional advice.

#### Rights and responsibilities of landholders in unproclaimed surface water areas

Public and private rights to water for domestic purposes and watering stock are similar to those which apply in proclaimed areas. Landholders living next to a watercourse or lake have the right to take water free-of-charge for domestic and stock purposes and for a household garden, if the land passed from Crown ownership before 1914.

There are three main differences in unproclaimed areas. The first is the right to take water for any other purpose as long as the flow of water in the watercourse or the amount in the lake is not noticeably diminished. Secondly, there is no provision to license water use, and thirdly, there is no provision to approve interference with the streamflow. These factors make it more difficult for the Water and Rivers Commission to manage water allocation and to offer the landholder an element of security through a formal approval process.

The amounts recommended in this Water Facts for riparian rights in proclaimed areas can be used as a guide to the amount of water which may be taken for stock and domestic purposes.





Landholders should use common sense to limit the amount of water taken and consider the impact that their use will have on their neighbours downstream.

If water is taken in excess of rights granted in the RWI Act and therefore interfering with the rights of other riparian landholders, the Water and Rivers Commission has the power to issue a direction defining the amount, the purpose and the way that water may be taken. Landholders have a right of appeal to the Minister for Water Resources if they are aggrieved by the Water and Rivers Commission's direction.

### What happens if I want to carry out commercial irrigation in an unproclaimed area?

If you haven't already done so, check with the local government authority that the activity you propose is permitted under the local town planning scheme. Depending on the size of the activity proposed and the degree of environmental impact it may have, there may also be a requirement to submit the proposal to the Environmental Protection Authority for assessment.

You are also advised to contact the regional office of the Water and Rivers Commission to discuss the proposed development and the amount of water required. The Water and Rivers Commission can advise you on how to manage taking and using water so that your development will have minimal impact on neighbouring landholders rights and the watercourse.

However, the Water and Rivers Commission cannot give you approval to irrigate as the RWI Act does not provide any right to do this.

### What are the rules on building dams in unproclaimed areas?

A surface water licence to divert water is not required in unproclaimed areas nor is approval required from the Water and Rivers Commission to obstruct the flow. However, a dam built on the watercourse has strong potential to noticeably diminish streamflow and therefore interfere with the rights of downstream users. Careful consideration of the methods used to divert water is required by the landholder to prevent this.

Apart from not requiring approval to obstruct the flow or the need to apply for a surface water licence, the information provided in this Water Facts on building dams in proclaimed areas is also applicable for unproclaimed surface water areas.

#### Box 4 Arid Interior (Western Plateau Division)

The hot and arid interior of the State is characterised by unco-ordinated, internal drainage with almost no major riverine landform features. It has very few watercourses, most of which are short and episodic. Use of water from these streams must by nature be opportunistic and, where available, groundwater is the more reliable alternative.

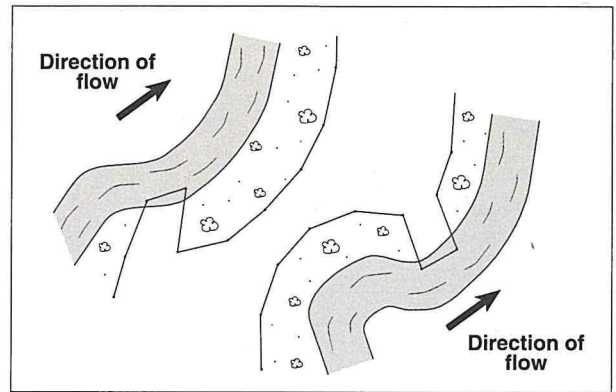


Fig.4 Locating watering points on inside bends and angles away from the direction of flow reduces the risk of erosion. Reproduced with permission of the Kondinin Group.

### Protecting water quality

Landholders are asked to consider any impact their activities may have on the quality of water in the stream or lake, whether or not approvals are required to operate activities close to the streamline.

The application of fertiliser and pesticides to crops planted close to the banks of a watercourse or lake will lower water quality. A vegetation buffer zone along the streamline is recommended to prevent seepage and runoff back into the watercourse. The Water and Rivers Commission can advise on the appropriate width according to the size of the stream.

Stock access to the watercourse should be controlled to minimise erosion of the banks, prevent destruction of the riparian vegetation, and limit the turbidity of the water flow. The riparian vegetation and banks of the watercourse can be fenced off with a limited number of points of access where stock can obtain water and measures taken to protect the banks. Figure 4 shows the ideal location of controlled access points for stock watering on either side of the river channel. Another solution is to pump water from the river to troughs away from the watercourse.



Sailing catamarans on the Swan River. Protecting downstream water quality of our rivers and estuaries is vital to ensure other uses are maintained.





## Who do I contact at the Water and Rivers Commission?



*Spectacular waterfall and gorge, King River Falls in the Kimberley.*

### Further information

#### Available from the Water and Rivers Commission:

*Caring for our waterways* Water Advice No. 1, Water and Rivers Commission, 1996.

*General guidelines for acceptability of aquaculture projects*, Water and Rivers Commission, 1996.

*Guidelines for the design and construction of small farm dams in the Warren Area*, Water Authority Report No. WP 159., 1993.

*Living Streams* Water Facts No. 4, Water and Rivers Commission, 1997.

#### Available from other sources:

Farmnotes, Agriculture Western Australia. [Tel: (08) 9368 3729]

*Control of erosion damage to dam walls and spillways* No. 81/89

*Dimensions and volumes of farm dams* No. 41/86

*Irrigation dams* No. 49/87

*Rain-water tanks* No. 84/90

Riparian Management Fact Sheets, Land and Water Resources Research and Development Corporation, GPO Box 2182, Canberra ACT 2601

*Managing riparian land* No. 1, 1996.

*Stream bank stability* No. 2, 1996.

*Water quality* 1996 No. 3, 1996.

*River ecosystems* No. 4, 1996.

*Managing stock* No. 6, 1996.

“Stock watering” Kondinin Research Report *Farming Ahead* No. 54, June 1996, p. 38-52. Available for purchase from the Kondinin Group, PO Box 913, Cloverdale WA 6105 [Tel: (08) 9478 3343].

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