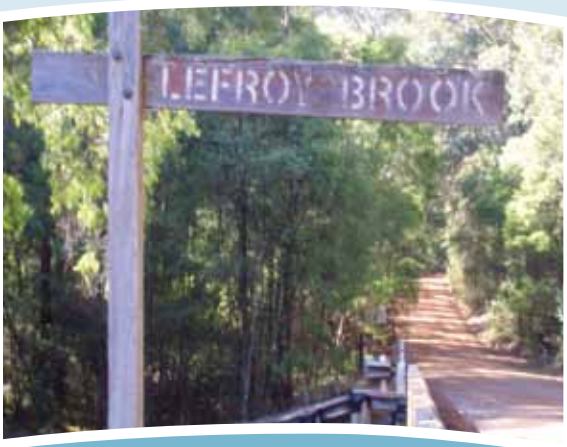
Government of **Western Australia**
Department of **Water**

Warren–Donnelly

surface water allocation plan



Looking after all our water needs

Water resource allocation
planning series
Report no 39
April 2012

Warren–Donnelly

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Message from the Minister

This water allocation plan for the Warren and Donnelly rivers recognises the importance of water for irrigated agriculture. Some areas of the catchments are so productive that the density of on-stream dams is amongst the highest in Australia. The Warren and Donnelly rivers also flow through significant conservation estate. In these areas, the priority for water is to protect the ecological and social values of the river environment.

The *Warren–Donnelly surface water allocation plan* sets highly reliable water allocations by taking into account year to year fluctuations in rainfall and streamflow. The new allocation limits include the current level of dam storage and provide water for further development in most areas. Where water is limited, this plan also gives an insight into how water users might take advantage of innovative approaches to take more water in wetter years.

The plan minimises the water supply risks to individual irrigators by giving licence holders secure and reliable water entitlements. The plan also maintains the wider amenity and environmental value of the rivers for the future.

I appreciate the considerable community interest shown in this plan and the advice provided by the Warren Donnelly Water Advisory Committee. I trust that this plan will encourage people to promote the importance of water, and to value it as a precious resource.

Bill Marmion

Hon Bill Marmion MLA, BEng, MBA
Minister for Environment; Water

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The Department of Water is responsible for allocating and licensing the state's water resources. This plan sets out how the department will allocate and licence surface water in the Warren and Donnelly basins.

Purpose of the plan

This is the first water allocation plan for the Warren–Donnelly area. The *Warren–Donnelly surface water allocation plan* will ensure water is allocated in a way that maintains a reliable water supply to irrigators and to support the social and environmental values of the rivers in the area. The department developed the plan in response to studies showing that some river catchments may be at risk of over-allocation in low rainfall years.

Water availability in the Warren–Donnelly

There are more than 480 on-stream dams distributed across the Warren–Donnelly catchments. Dams are refilled by streamflow which varies significantly from year to year. In this context, and to ensure reliability of supply to meet current and future demand, water allocations in this plan are based on streamflows in the driest years.

There is water available for licensing in 20 out of the 25 subareas in the Warren–Donnelly. For up-to-date information on the volume of water available for licensing contact our Manjimup office on 08 9771 1878 or visit our online water register at <www.water.wa.gov.au>. The table below provides a summary of water availability (more detail is provided in Table 2 in Section 3.2).

Summary continues

Allocation limits and water availability as at December 2011

Subarea	Allocation limit ML/year	Water available (catchment type)
Warren River Basin		
Diamond Tree Gully	1 452	Yes
Dombakup Brook	3 952	Yes
East Brook	4 609	Limited water available
Four Mile Brook/Big Brook	6 673	Yes
Lefroy Brook	3 595	Yes
Lower Warren	519	Yes (forested)
Perup River	2 099	Yes
Quinninup Brook	535	Limited water available (forested)
Smith Brook	5 356	Limited water available
Tone River	55	Fully allocated
Treen Brook	1 888	Yes (forested)
Unicup Lakes	0	Not available (conservation area)
Upper Lefroy	6 975	Fully allocated
Upper Warren	2 497	Yes (forested)
Wilgarup River	8 313	Limited water available
Yerraminnup River	426	Yes
Warren River Basin total	48 944	
Donnelly River Basin		
Barlee	895	Yes (forested)
Beedelup Brook	3 499	Yes
Carey Brook	0	Not available (conservation area)
Fly Brook	3 839	Yes
Lower Donnelly	741	Yes (forested)
Manjimup Brook/ Yanmah–Dixvale	7 531	Limited water available
Middle Donnelly	2 859	Yes
Record Brook	500	Fully allocated
Upper Donnelly	4 058	Yes
Donnelly River Basin total	23 922	

Summary continues

Allocation and licensing approach for the Warren–Donnelly area

The department will allocate water up to the allocation limits in accordance with the licensing and allocation approach set out in Chapter 4. For additional water there are other options such as transfers or trading and the possibility of taking water at a lower reliability of supply.

How the department developed this plan

The department worked closely with stakeholders to get input and feedback which directly shaped this plan. To develop this plan we:

- reviewed previous allocation limits based on yield estimates from new environmental flow studies completed across south-west Western Australia
- used the results of scientific studies and the advice from local irrigators
- invited and considered submissions on the *Warren–Donnelly surface water allocation plan: for public comment* in 2010
- consulted the Warren Donnelly Water Advisory Committee, sector groups and peak industry representatives.

More information on how we developed the *Warren–Donnelly surface water allocation plan* is available from our website <www.water.wa.gov.au>, including:

- *Warren–Donnelly surface water allocation plan methods report*
- *Water allocation planning in Western Australia: a guide to our process*

Chapter One

Plan context and scope

1.1 Purpose of the plan

This is the first water allocation plan for the surface water of the Warren–Donnelly catchment areas. This plan describes how surface water is allocated and managed and draws on the experience of the past 50 years of surface water licensing and water management in the region.

The department will use the *Warren–Donnelly surface water allocation plan* to maintain the reliability of supply to water users and the environment in the Warren–Donnelly area. This plan describes:

- the total amount of water that is available to be licensed
- water resource objectives and expected outcomes
- the policy that will be applied as part of the department's licence decisions
- our approach to managing water in the Warren–Donnelly area.

1.2 Plan area

The plan covers the Warren and Donnelly river basins, an area of almost 6100 km^2, in the south-west of Western Australia (Figure 1). About two-thirds (4000 km^2) of the plan area is covered by state forest, national park and nature reserve (Figure 2). The towns of Manjimup and Pemberton are located within the plan area.

In areas that are proclaimed under the *Rights in Water and Irrigation Act 1914* (Figure 1), the department manages water resources by licensing the take of water. The plan area covers the:

- Warren River and tributaries surface water area, proclaimed in 1959
- Donnelly River System surface water area, proclaimed in 1968.

Figure 1

Warren–Donnelly surface water allocation plan area and proclaimed areas

Warren–Donnelly surface water allocation plan

1.3 Water resources covered

The *Warren–Donnelly surface water allocation* plan covers the Warren River and its tributaries, including the Tone, Perup, Yerraminnup and Wilgarup rivers and Lefroy Brook, and the Donnelly River and its tributaries, including Barlee Brook.

The department divides the Warren–Donnelly area into 25 surface water subareas for allocation planning and licensing purposes (Figure 2). These subareas are based on hydrological catchment boundaries.

The Warren River Basin is divided into 16 subareas:

- Diamond Tree Gully
- Dombakup Brook
- East Brook
- Four Mile Brook/Big Brook
- Lefroy Brook
- Lower Warren
- Perup River
- Quinninup Brook
- Smith Brook
- Tone River
- Treen Brook
- Unicup Lakes
- Upper Lefroy
- Upper Warren
- Wilgarup River
- Yerraminnup River.

The Donnelly River Basin is divided into nine subareas:

- Barlee
- Beedelup Brook
- Carey Brook
- Fly Brook
- Lower Donnelly
- Manjimup Brook/Yanmah-Dixvale
- Middle Donnelly
- Record Brook
- Upper Donnelly.

For administrative purposes, the subarea is the allocation unit and is referred to as a surface water resource. We have set an allocation limit for each subarea, which is the annual volume of surface water available for consumptive use. This was calculated at the most downstream point of the subarea (Chapter 3).

Some subareas are partially or mostly cleared and are important for irrigated agriculture (Figure 2). The cleared areas around Manjimup and Pemberton are priority agricultural management areas under the Department of Planning's *Statement of Planning Policy No. 11* (DoP 2002). Other subareas are mostly or completely covered by forest or conservation areas. The rivers in these subareas have significant environmental and social values associated with them. Taking water for irrigation in these subareas is limited by legal access to the land.

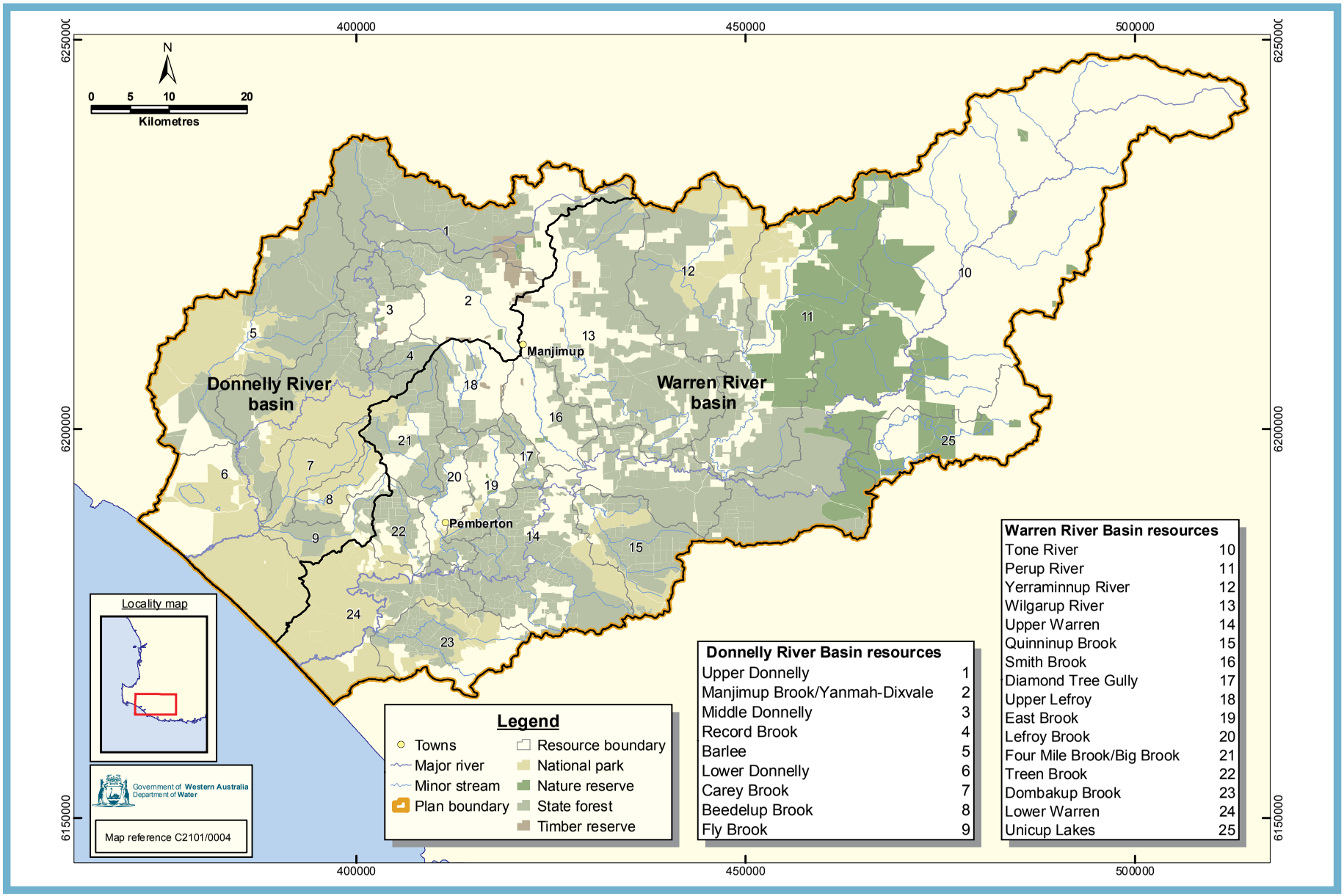

Figure 2

Surface water subareas (resources) this plan applies to

Warren–Donnelly surface water allocation plan

Public water supply is currently supplied from the Upper Lefroy, Four Mile Brook/ Big Brook and Quinninup subareas for the towns of Manjimup, Pemberton and Quinninup respectively. The Warren River is a designated water resource recovery catchment and, under the Salinity Action Plan (Government of Western Australia 1996), was considered a potential future water source for the South West region.

1.4 Plan timeframe

The *Warren–Donnelly surface water allocation plan* will be in effect for seven years, or until it is amended, replaced or revoked by the Minister for Water.

The department will consider replacing this plan in January 2019 unless a plan evaluation shows that an earlier replacement is needed (see Figure 3 and Section 6.2).

The department will implement this plan in parallel with:

- developing and testing a new dam reliability tool
- trialling ways to take low reliability water in years of abundant flow (see Figure 3 and Section 4.6).

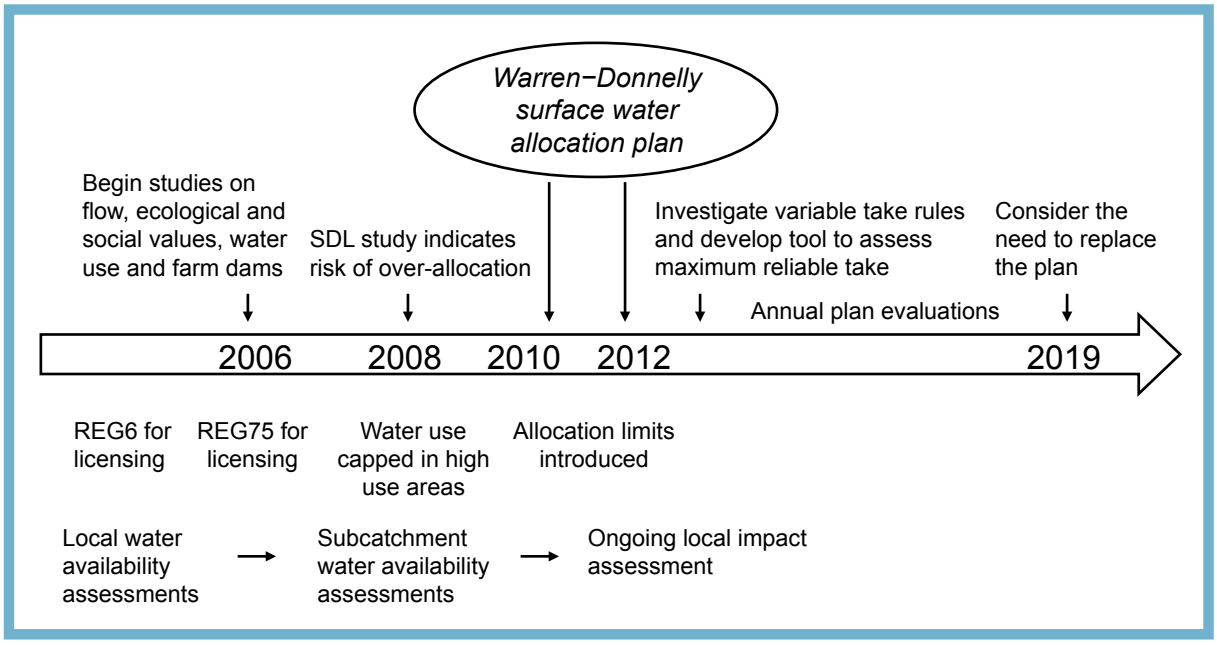

Figure 3
Timeline for Warren–Donnelly surface water allocation planning
Warren–Donnelly surface water allocation plan

1.5 How we developed the plan

The department began work on the *Warren–Donnelly surface water allocation plan* in 2008 when a sustainable diversion limits study indicated that some rivers may be fully or over allocated (SKM 2008). As an interim measure the department capped water use to reduce risk to reliability of supply and river ecosystems, and embarked on more detailed planning work using studies more specifically tailored to the Warren–Donnelly rivers.

Work for the plan included:

- developing new surface water allocation limits using information available on surface water yields, water use, land use, future water demand and future climate
- developing and releasing the *Warren–Donnelly surface water allocation plan: for public comment* (DoW 2010c) from June to September in 2010
- having a scientific panel, led by the University of Melbourne, review the ecologically sustainable yields method that we used to set the allocation limits
- working with the Warren Donnelly Water Advisory Committee to review allocation limits and address stakeholder comments
- working with other stakeholders to discuss local water issues.

The department developed and used a new ecologically sustainable yield method to calculate the additional water that could be taken from the system, and used this as a basis to set allocation limits. This methodology was peer reviewed by the University of Melbourne early in 2011 and the review found the methodology to be consistent with current best practice (UoM 2011). This work and other supporting studies are published on our website <www.water.wa.gov.au>.

1.6 Stakeholder interests

There has been a lot of interest in the plan, particularly from horticulturalists and orchardists who rely on irrigation water from self-supply, on-stream farm dams. Other interested parties included the Warren Catchments Council, the Water Corporation, the Shire of Manjimup and the Department of Agriculture and Food WA.

In 2007, on behalf of the department, Beckwith Environmental Planning investigated issues affecting stakeholders in the Lefroy Brook catchment. During the development of this plan, the department has provided a number of opportunities for stakeholder involvement, including:

- providing briefings on the plan and allocation limits to the Warren Donnelly Water Advisory Committee and sector groups before and during the public comment period
- inviting submissions on the *Warren–Donnelly water allocation plan: for public comment*
- discussing the public submissions, plan objectives, planning process and allocation limit methodology in detail with the Warren Donnelly Water Advisory Committee, peak industry representatives and chairs of sector groups.

The main areas of interest related to:

- the importance of irrigated agriculture in the plan area and the amount of water that should be allocated for agriculture
- water for the environment
- having sufficient consultation and stakeholder involvement
- clarity of the methods used to calculate yield and decide allocation limits
- achieving a balance between economic, social and environmental considerations
- the transparency of the allocation planning process
- the need for investigating options for taking more water in wetter years.

For further information on the stakeholder interests during the public comment period, the results of the Beckwith study and the allocation planning process, visit <www.water.wa.gov.au> and search for the publications:

- *Warren–Donnelly surface water allocation plan: Statement of response* (DoW 2012b)
- *Lefroy Brook – surface water management: issue scoping report* (Beckwith 2007)
- *Water allocation planning in Western Australia: a guide to our process* (DoW 2011)

1 Plan context and scope

Warren Donnelly Water Advisory Committee

The department may establish committees under the following Acts:

- *Rights in Water and Irrigation Act 1914* (s26GK)
- *Water Agencies (Powers) Act 1984* (s109).

The department also forms non-statutory advisory groups and stakeholder reference groups for specific projects.

The Warren Donnelly Water Advisory Committee is established under the *Water Agencies (Powers) Act 1984*. The committee provides advice to the department about surface water management and allocation within the Warren and Donnelly river catchments, specifically in the areas of:

- water allocation objectives and principles
- local area water management and allocation planning
- non-conforming licence applications and/or conflicts over water use.

The Warren Donnelly Water Advisory Committee advise the department by:

- providing us with the range of community views on water resource issues
- providing a community interface for engagement, extension and awareness in regard to Warren–Donnelly water resource management issues
- bringing local knowledge and skills and participating in managing water resources sustainably in the Warren–Donnelly region
- being involved in community consultation on water resource issues and planning
- liaising with licensees to assist in the resolution of conflicts over water use.

Chapter Two

What the plan will achieve

The Department of Water is responsible for managing water resources in Western Australia, consistent with the objects of the *Rights in Water and Irrigation Act 1914*. The first object of Part III of the Act is:

a To provide for the management of water resources, and in particular –

i. for their sustainable use and development to meet the needs of current and future users; and

ii. for the protection of their ecosystems and the environment in which water resources are situated, including by the regulation of activities detrimental to them.

Through planning, the department determines the amount of water that can be taken from a water resource, without compromising reliability to existing water users or damaging the environment. Water allocation plans provide transparency and security to water licence holders in the plan area.

This plan establishes the total volume of water that can be reliably taken from rivers every year for each of the Warren–Donnelly subareas. This ensures that there is enough water to provide users with their entitlements, to support the amenity of rivers in areas of public access and to sustain the existing environment in most years.

The water resource objectives for this plan and the outcomes they support were developed using:

- advice and information from licence holders and the community
- information on how surface water is currently captured and stored
- hydrological information and future streamflow projections
- current and future land and water use
- the results of scientific investigations into environmental flows
- the reliability of current abstractions.

The water resource objectives and outcomes guided our decision making for the water allocation limits, licensing rules and monitoring requirements for each of the 25 surface water subareas of the plan. This is outlined in the supporting document, *Warren–Donnelly surface water allocation plan methods report* (DoW 2012a).

2 What the plan will achieve

2.1 Outcomes

This plan aims to ensure that reliability of water supply is not a limiting factor to the long-term viability of agriculture in those catchments important for irrigated agriculture. The desired outcomes of this plan are that:

- the long-term reliability of water allocation will be maintained
- existing river ecology and social values will be protected
- current public water supply reserves in the area will be maintained
- the future development and investment potential in the area will not be limited by the risk of over-abstraction
- more innovative ways can be developed to take and store water at a lower reliability (Section 4.6).

2.2 Water resource objectives

Water resource objectives relate to maintaining, increasing, improving, restoring, reducing or decreasing surface water flow, groundwater levels or water quality. In administering the *Rights in Water and Irrigation Act 1914*, the department makes provision for both the sustainable use and development of water resources and the protection of river ecosystems associated with water resources.

In subareas in the Warren–Donnelly plan area where consumptive water use is the priority (Table 1), our aim is to maximise the amount of water available and ensure that licence entitlements can be taken reliably. In resources with higher environmental and social values, we are protecting more of the flow regime to maintain values within and downstream of the resource.

The water resource objectives of this plan are as follows:

a Flow regimes in irrigated subareas that supply licence entitlements in almost all years. This includes leaving sufficient water in rivers to reach downstream users and to meet minimal environmental needs in dry years.

b Flow regimes in forested and conservation subareas that maintain existing environmental and social values. This includes retaining most or all of the water as environmental flow where land use zoning is not compatible with irrigation.

c Sufficient flow retained for the existing public water supply reserves.

d Sufficient freshwater flows in the Warren River to complement the salinity recovery targets.

These objectives reflect the main land uses for each part of the catchment (Table 1), existing commitments for public water supply and salinity recovery (Section 1.3), policy and legislation (Chapter 4).

Table 1
Catchment categories, subareas in each category and objectives

	Category	Subarea	Water resource objectives
1	Important for irrigated agriculture	Beedelup Brook Diamond Tree Gully Dombakup Brook Fly Brook Four Mile Brook/Big Brook East Brook Lefroy Brook Manjimup Brook/Yanmah-Dixvale Middle Donnelly Perup River Smith Brook Upper Donnelly Upper Lefroy Wilgarup River Yerraminnup River	a) Flow regimes that supply licence entitlements in almost all years. c) Sufficient flow retained for the existing public water supply reserves.
2	Future public water supply	Record Brook	c) Sufficient flow retained for the existing public water supply reserves.
3	Mostly forest or conservation area	Barlee Brook Lower Donnelly Carey Brook Unicup Lakes	b) Flow regimes that maintain existing environmental and social values.
4	Mostly forest conservation area and/or Warren River salinity improvement	Upper Warren Quinninup Brook Treen Brook Lower Warren Tone River	b) Flow regimes that maintain existing environmental and social values. c) Sufficient flow retained for the existing public water supply reserves. d) Sufficient fresh water flows in the Warren River to complement the salinity recovery targets.

2 What the plan will achieve

2.3 Strategies

To meet the water resource objectives of this plan the department will:

- license and manage to the allocation limits in the 25 surface water subareas in the Warren–Donnelly area (Chapter 3)
- issue licences according to the allocation and licensing policies outlined in this plan (Chapter 4)
- monitor streamflow (Chapter 5)
- support efficient water use practices and innovative ways to take and store water
- investigate potential breaches of licence conditions and take enforcement action where necessary.

2.4 Measuring the success of the plan

The department will regularly evaluate the plan to see if the outcomes and water resource objectives are being met. To evaluate the plan we will:

- assess the water resource using monitoring information
- assess licensing and water use data.

The results will be published in an evaluation statement. Refer to Chapter 5 and section 5.1 for more information about how the department will monitor and evaluate the performance of the plan.

Chapter Three

Water allocation limits

This chapter covers:

- what the allocation limits are and how they are applied
- how the allocation limits in each of the 25 surface water subareas were set
- why water is left in the rivers for non-consumptive uses.

3.1 Allocation limit

The allocation limit is an annual volume of water set aside for consumptive use from a water resource. In the Warren–Donnelly plan area, the allocation limit represents the total volume of water that can reliably be taken annually (as storage or diversion) from each subarea.

The allocation limit does not include water to be left in the river. The allocation limit is set to ensure there is sufficient water left in the river to maintain the social and ecological values of rivers and to carry water to downstream dams.

The department has set highly reliable allocation limits for the Warren–Donnelly subareas because streamflow varies significantly from year to year. To achieve this high reliability, allocation limits are based on a benchmark dry year for each subarea (the year of lowest streamflow for the period 1975–2007, generally 1987).

The department uses allocation limits to manage the whole resource sustainably and to maintain the security of individual licence entitlements. By managing according to an allocation limit, we ensure that the total volume of entitlements on all the individual licences in a subarea does not exceed the total reliable annual volume for each subarea.

In those Warren–Donnelly subareas that are important for irrigation (Category 1 in Table 1), the allocation limit allows for a highly reliable volume for use and a minimal environmental flow in a dry year. In wetter years there will be more water for the environment as well as more water, at a lower reliability, for irrigation (see Section 4.6).

There is 72.86 GL per year allocated for consumptive use across the 25 subareas, with 67 GL per year for licensing, mostly in the 15 subareas important for irrigated agriculture. Of this, about 35 GL per year is currently issued as licence entitlements. The allocation limits are shown in Table 2.

Under this plan, there is enough water allocated to meet current use and the highest estimated demand projected by CSIRO for the whole plan area to 2030 (39.8 GL/year). However, in five irrigated subareas there is only limited

water available now and local demand is likely to exceed allocation limits. An approach to meet this local demand by taking lower reliability water, without affecting higher reliability entitlements, is explained in Section 4.6.

In the Warren–Donnelly subareas that are important for conservation (Category 3 in Table 1), water is either not allocated for consumptive use, or is allocated in proportion to the irrigable land in the subarea. The potential yield from these subareas is greater than the allocation limits, but taking water for irrigation is limited by current land vesting. The department will consider an application to take water from forested areas if an applicant can show they have legal access to the land.

In Record Brook water is reserved for future public water supply and the allocation limit is set at the reserve volume.

In the Warren River subareas important for conservation and/or Warren River salinity improvement, the water left in the river provides fresh flows to the Warren River to complement the salinity recovery targets. For the Tone River, the allocation limit is set at current use because there is no irrigation activity in this area (due to the high river salinity), and to account for potential water interception by plantations as part of salinity management in the Warren catchment.

3.2 Components of the allocation limit

For administrative purposes, the allocation limit includes components for:

- water that is available for licensing
  - general licensing
  - public water supply licensing
- water that is exempt from licensing
- water that is reserved for future public water supply.

The allocation limit, its components and the status of water availability for general licensing are shown in Table 2 for each subarea (surface water resource). Figure 4 shows the availability of surface water for licensing.

The department will allocate water up to the allocation limits for each of the surface water subareas in accordance with the licensing and allocation approach set out in Chapter 4. The allocation limits are annual totals (see Table 2).

Once a subarea is fully allocated, the department will refuse applications for new entitlements (or increases to existing entitlements) for high reliability water. However, we can discuss other options such as trading or transfers and the potential for accessing lower reliability water (Section 4.6).

Please contact our Manjimup office on 08 9771 1878 for up-to-date information on the volume of water available for new use. Alternatively, you can view water availability through the department's online water register at <www.water.wa.gov.au>

Table 2
Allocation limit, components of the allocation limit and water availability status for each subarea

Subarea (resource)	Allocation limit ML/yr	Allocation limit components (ML/yr)				Status of water availability for licensing[1] (as at December 2011)
		Licensable		Unlicensable	Reserved water	
		General licensing	Public water supply	Unlicensed use	Public water supply	
Warren River and tributaries surface water area						
Diamond Tree Gully	1 452	1 429	0	23	0	Yes
Dombakup Brook	3 952	3 941	0	11	0	Yes
East Brook	4 609	4 336	0	273	0	Limited water available
Four Mile Brook / Big Brook	6 673	5 989	450	184	50	Yes
Lefroy Brook	3 595	2 947	450	198	0	Yes
Lower Warren	519	491	0	28	0	Yes – forested[2]
Perup River	2 099	2 056	0	43	0	Yes
Quinninup Brook	535	472	30	33	0	Limited water available – forested
Smith Brook	5 356	5 073	0	283	0	Limited water available
Tone River	55	50	0	5	0	Fully allocated
Treen Brook	1 888	1 816	0	72	0	Yes – forested
Unicup Lakes[3]	0	0	0	0	0	Not available – conservation area
Upper Lefroy	6 975	5 581	894	500	0	Fully allocated
Upper Warren	2 497	1 892	0	105	500	Yes – forested
Wilgarup River	8 313	7 806	0	507	0	Limited water available
Yerraminnup River	426	425	0	1	0	Yes
Warren totals	**48 944**	**44 304**	**1 824**	**2 266**	**550**	

Table 2 (continued)
Allocation limit, components of the allocation limit and water availability status for each subarea

Subarea (resource)	Allocation limit ML/yr	Allocation limit components (ML/yr)				Status of water availability for licensing[1] (as at December 2011)
		Licensable		Unlicensable	Reserved water	
		General licensing	Public water supply	Unlicensed use	Public water supply	
Donnelly River System surface water area						
Barlee	895	895	0	0	0	Yes – forested
Beedelup Brook	3 499	3 432	0	67	0	Yes
Carey Brook	0	0	0	0	0	Not available – conservation area
Fly Brook	3 839	3 767	0	72	0	Yes
Lower Donnelly	741	740	0	1	0	Yes – forested
Manjimup Brook / Yanmah-Dixvale	7 531	7 105	0	426	0	Limited water available
Middle Donnelly	2 859	2 759	0	100	0	Yes
Record Brook	500	0	0	0	500	Fully allocated
Upper Donnelly	4 058	4 025	0	33	0	Yes
Donnelly totals	**23 922**	**22 723**	**0**	**699**	**500**	

1 Please contact our Manjimup office on 08 9771 1878 for up-to-date information on the volume of water available for future use. The status indicates how much of the water available for general licensing has been allocated and whether water is available for new licences. Water available means < 70 per cent has been allocated and limited water available means 70 to 100 per cent has been allocated. Note that water available is assessed for each licence application at the local scale (see Chapter 4).

2 In mainly forested catchments, the allocation limit shown is based on the yield scaled to the area of freehold land. The department will consider an application to take water from forested areas if an applicant can show they have legal access to the land. Potential total allocations are up to 3200 ML/yr from Lower Warren, 2434 ML/yr from Quinninup, 7008 ML/yr from Upper Warren, 12 822 ML/yr from Barlee Brook, 3648 ML/yr from Carey Brook and 11358 ML/yr from Lower Donnelly.

3 The Unicup Lakes subarea is proclaimed under the Warren River and tributaries surface water area but is within the Muir–Unicup surface water allocation area (water resource database information). The allocation limit was set at current use (0) to help protect the environment.

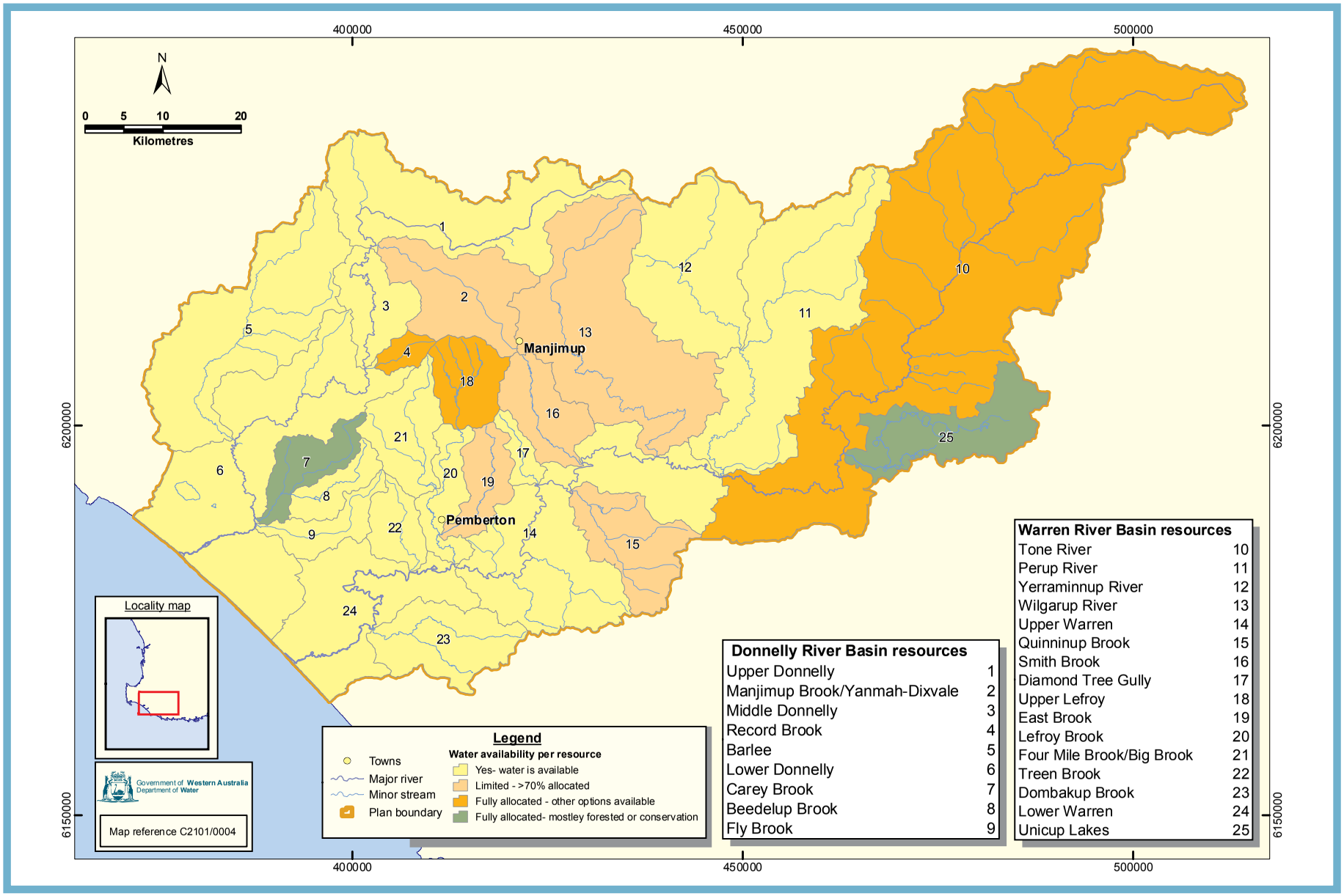

Figure 4

Surface water availability for licensing in the Warren–Donnelly area

Warren–Donnelly surface water allocation plan

General licensing

The general licensing component of the allocation limit includes the total volume of water which can be issued as annual licence entitlements, except licences for public water supply (see Table 2).

Unlicensed use – water use exempt from licensing

The unlicensed use component of the allocation limit generally includes all surface water uses legally exempt from licensing because the water is taken or captured:

- for riparian rights or stock and domestic use only (i.e. water for household purposes and non-intensive stock watering)
- from springs and wetlands wholly within a property
- from streams arising on a property
- in areas not proclaimed
- by plantations.

In the Warren–Donnelly plan areas, the department's estimates of unlicensed use (Table 2) refer to existing stock and domestic dams, based on the mapping of farm dams in the area. In the future, we may refine our estimates of unlicensed use to include water used for other purposes. Changes to estimates should not affect water available for licensing.

Public water supply and reserves

Public water supply is the allocation limit component for water that is currently licensed for public water supply. The Water Corporation holds four licences to take a total of 1824 ML/year from four surface water subareas in the Warren River Basin (see Table 2).

The allocation limit component for reserves allows for future public water supply where there is sufficient water available and where areas are zoned as Public Drinking Water Source Areas. Water is reserved for future public water supply in Record Brook (500 ML/yr), Upper Warren (500 ML/yr) and Four Mile Brook/Big Brook (50 ML/yr) to meet the Water Corporation's projected public water supply needs. As necessary, the Water Corporation will consider other options to meet projected public water supply needs.

3.3 How the allocation limits were set

Setting the allocation limits in the Warren–Donnelly rivers was influenced by four characteristics of the area:

- land uses are different in different parts of the catchments
- on-stream dams are distributed, operated independently and may impact downstream users
- streamflows vary annually
- water use (licensed and unlicensed) and demand varies across catchments.

While the underlying method to calculate yields was the same, different allocation limit criteria were applied for different subareas according to their different land uses (see Section 2.2, Table 1):

- In subareas important for irrigation, the allocation limit is maximised within reliability and environmental boundaries.
- In subareas reserved only for future public water supply, water is allocated at the current reserve.
- In subareas important for conservation or salinity improvement, water is not allocated or is allocated to meet the irrigation demand.

There are more than 480 on-stream dams distributed across the Warren–Donnelly catchments. Dams are operated independently and the current infrastructure does not enable water to be shared evenly in dry years. Therefore allocation limits are set at a high reliability so water entitlements are secure (in years wetter than the benchmark dry year, generally 1987).

On-stream dams are refilled by streamflow which varies significantly in amount and distribution from year to year. To set reliable allocation limits, the yield was calculated at the bottom of each subarea for the driest year in the period 1975–2007. In most subareas the driest year was 1987.

The department used the ecologically sustainable yield method to determine the amount of water that needs to stay in the river and the extra water, in addition to the current level of use, that could be taken. In subareas important for irrigated agriculture, the allocation limit was set at the March 2010 level of use plus the extra water calculated through the ecologically sustainable yield method. Figure 5 provides a conceptual model of a river cross section of this approach.

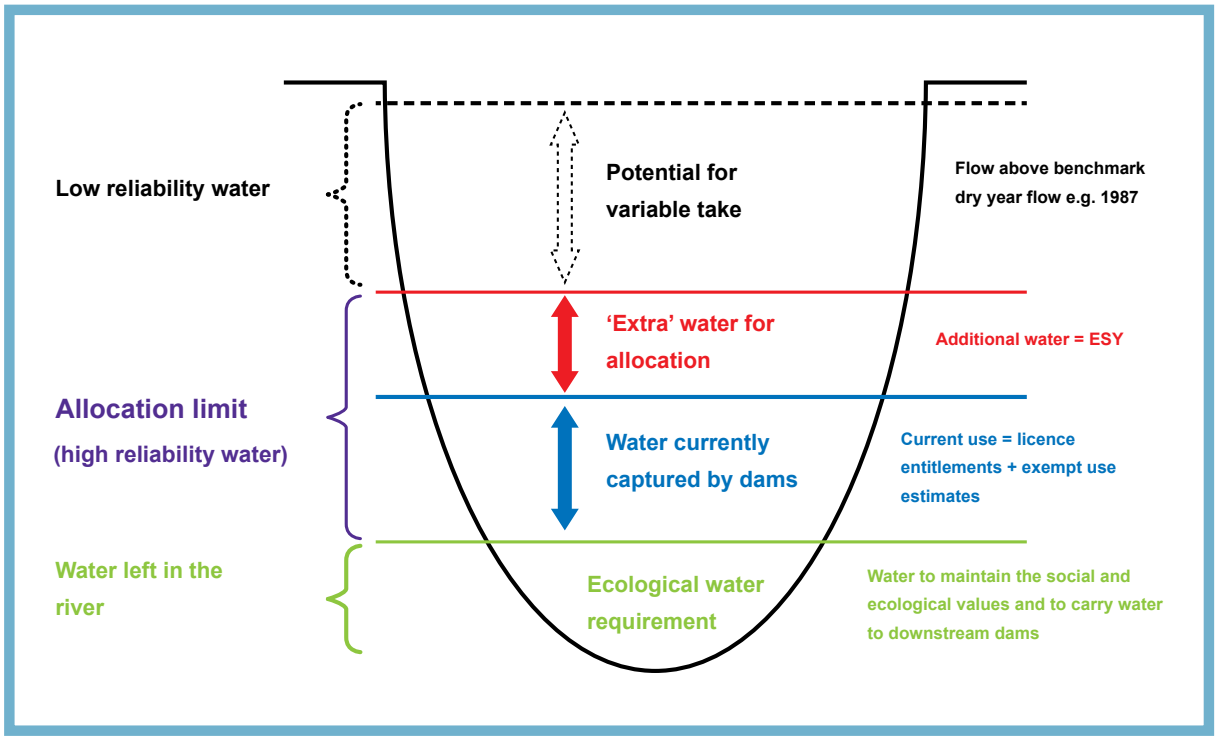

Figure 5
Conceptual model of river cross section and allocation limits in irrigated agriculture catchments
Warren–Donnelly surface water allocation plan

Streamflows in the 2000s were generally lower than in the 1990s or 1980s. Because flows in 2010 were lower than the benchmark dry years (1987 for most subareas), we were able to ground truth our previous calculations and consequently remove the risk factor we applied to allocation limits in the plan released for public comment in 2010. While the frequency of dry years may increase with a drying climate, by basing allocation limits on a benchmark dry year, reliability can be maintained for most years. If there are years dryer than the benchmark year, or consecutive dry years, impacts on reliability would be subject to location of dams and distribution of rainfall and streamflow.

For detailed information on how we set allocation limits and water to be left in the rivers, visit <www.water.wa.gov.au> and search for the publications:

- *Warren–Donnelly surface water allocation plan methods report* (DoW 2012a)
- *Peer review of ecologically sustainable yield method in south-west Australian streams* (UoM 2011)

3.4 Water left in the rivers

In the Warren–Donnelly subareas that are important for irrigated agriculture (Table 1), flow not captured by self-supply farm dams remains in the river system. This flow varies each year depending on:

- rainfall and runoff
- distribution of different land uses in the catchment
- the volume captured and used by each dam storage.

Water left in the river system supports environmental and social values and protects water quality and other non-consumptive uses. Given the distributed, independently operated nature of storages, leaving water in rivers is generally necessary to carry water to the next downstream user.

In years that are wetter than the benchmark dry year for each subarea, there will be more water flowing out of a subarea. This indicates that the reliability of supply to licensed dams in the subarea is being protected.

In the mostly forested or conservation subareas, most or all of the flow remains in rivers. Because there are large areas of conservation estate in the Warren and Donnelly catchments, water will naturally flow out of these areas to the ocean.

Chapter Four

Water allocation and licensing policies

Water licences are the regulatory instrument the Department of Water uses under the *Rights in Water and Irrigation Act 1914* to manage individual take and use of surface water and groundwater. In the Warren–Donnelly plan area, water users legally require a licence to take surface water. The department uses state-wide and local policies to guide how we assess licence applications and apply licence conditions.

This chapter includes the policies for managing water allocation and licensing in the *Warren–Donnelly surface water allocation plan* area.

4.1 Legislative requirements

The department manages water on behalf of the state under the *Rights in Water and Irrigation Act 1914*. The Act establishes the legislative framework for managing and allocating water in Western Australia. In administering the Act we abide by other state and federal legislation.

4.2 Water licences

To lawfully take surface water in the Warren–Donnelly plan area, water users generally require a licence under Section 5C of the *Rights in Water and Irrigation Act 1914*. A permit is also required to interfere with the bed and banks of watercourses. This includes installing pumps or constructing dams, under clauses 11, 17 and 21 of the act.

In granting a water licence, the department considers the allocation plan, as well as Clause 7 (2) of Schedule 1 of the *Rights in Water and Irrigation Act 1914*. Where water is available, water is allocated on a first-in first-served basis.

The department may apply terms, conditions and restrictions to licences under Clause 15 of Schedule 1 of the *Rights in Water and Irrigation Act 1914*. This may include an operating strategy. The department's requirements for altering any licence condition are specified under Clause 24 (1) of Schedule 1 of the *Rights in Water and Irrigation Act 1914*. Any decision made on a licence application can be appealed through the State Administrative Tribunal.

Riparian rights

Riparian rights are detailed in Part III, Division 1B, sections 9, 10, 20 and 21 of the *Rights in Water and Irrigation Act 1914*. A riparian right grants a landholder the right to take surface water without a licence, for domestic or stock water that is non-intensive (s21(4)):

- in a proclaimed area:
  - where a watercourse arises on their private property
  - where a watercourse flows through crown land (but not unallocated crown land) (section 10 of the Act applies) adjoining their property
- in an unproclaimed area:
  - in addition to the points above, for any other purpose to the extent that the flow of water in the watercourse or the amount of water in the wetland is not sensibly diminished
  - where a watercourse flows through.

Public drinking water source areas

Parts of the Warren–Donnelly area are proclaimed for the protection of public drinking water supplies under the *Country Areas Water Supply Act 1947*. These are the:

- Lefroy Brook Catchment Area (includes Lefroy Brook Weir and Big Brook Dam)
- Manjimup Dam Catchment Area (includes Manjimup Dam, also known as Scabby Gully Dam)
- Phillips Creek Catchment Area (includes Phillips Creek Dam)
- Quinninup Dam Catchment Area (includes Quinninup Dam, also known as Karri Lake).

The department has water source protection plans for the Quinninup Dam Catchment Area (Quinninup town water supply) and for the Manjimup Dam and Phillips Creek Dam Catchment Areas (Manjimup town water supply). We have completed a water source protection assessment for the Lefroy Brook Catchment Area (Pemberton town water supply). Water source protection plans, assessments, policies and water quality protection notes are available online at <www.water.wa.gov.au>.

The Water Corporation manages town water supply to Manjimup, Pemberton and Quinninup. Manjimup is supplied by Manjimup Dam (mainly) and Phillips Creek Dam. Pump back from Four Mile Brook and private farm dams in the area with suitable water quality have been used as an emergency source to supplement water levels in Manjimup Dam. Pemberton is supplied by Lefroy Brook Weir and Big Brook Dam and Quinninup is supplied by Quinninup Dam.

If surface water not supplied through town water supply is to be used for private drinking water supplies, the department recommends that it be filtered, treated and tested according to public health advice from the Department of Health. For more information, also see the department's water quality protection notes, Australian drinking water guidelines (Australian Government 2004) and the Australian fresh and marine water quality guidelines (ANZECC & ARMCANZ 2000).

Compliance and enforcement

The *Rights in Water and Irrigation Act 1914* requires people and organisations to acquire appropriate authorisation to take water. If the authorisations are not demonstrated or the conditions of a licence are breached the department will take enforcement action.

4.3 General approach to allocating water

The department's approach to allocating water in the Warren–Donnelly area will achieve the objectives set out in Chapter 2. The department uses the licensing process to allocate the available water up to the allocation limits set in Chapter 3.

First-in first-served

The department applies a first-in first-served approach when assessing applications for water licences. The state-wide policy is currently under review. As a local licensing policy, the department will continue to use the first-in first-served approach in the Warren–Donnelly area.

Water availability assessment at the subarea and local scales

At the subarea (resource) scale, the department assesses whether water is available for an application based on the allocation limit component for licensing. At the local scale in the Warren–Donnelly area, water available is calculated per unit area (ML/km^2) based on the catchment area upstream of the proposed abstraction point. Approval of an application is still subject to assessment of impacts downstream even if within the allocation limit (policy group 4.1 Table 3).

Annual water entitlements

The department will consider the volume of surface water to be stored and used when determining the annual water entitlement for a surface water licence. For a licence to take water from an on-stream dam, the department will generally set the water entitlement as the dam capacity. For a licence to pump from a watercourse into an off-stream dam, the department will set the water entitlement as:

- the maximum volume of water to be pumped from the watercourse annually for an unlicensed spring-fed or riparian rights dam
- the dam capacity for a licensable dam.

4.4 Approach to water licensing

A water licence provides a legal and secure entitlement to water. The department uses licences to manage abstraction at an individual scale to support development, protect the entitlements of other users and maintain the environment.

The department undertakes water licensing in accordance with:

- the *Rights in Water and Irrigation Act 1914*
- the allocation limits, approach and local licensing policies outlined in this plan
- strategic and operational policies that apply state-wide.

The department will also consider legislative requirements or policies of other government agencies (for example, land zoning and planning documents of the local government authorities) to ensure land and water use are integrated where possible.

The department's Manjimup office manages the licensing of taking and using surface water and the granting of permits to interfere with the bed and banks of watercourses in the Warren–Donnelly plan area.

The department will refuse a licence application if the allocation limit would be exceeded or local impacts will be unacceptable. Where a subarea (resource) is fully allocated, people wishing to gain new surface water entitlements should consider transactions with existing licensees (transferring or trading existing water entitlements or reaching an agreement to use an existing water entitlement) or low reliability water (Section 4.6).

The department carries out regular licence compliance audits to ensure that water take and use is in accordance with licences and their conditions. During auditing, the department reviews monitoring data and any metering data and assesses whether there are any local impacts, to ensure that the licence conditions are appropriate.

4.5 Licensing policies

Local licensing policies for the Warren–Donnelly

These local policies provide additional guidance for managing licences in the Warren–Donnelly area (see Table 3). They apply either because the local issues are not addressed in state-wide policy, or because an alternative approach is needed to better manage the local issue. Where a local policy differs from a state-wide policy, the local policy in this allocation plan is applied.

Table 3
Policies specific to surface water licensing in the Warren–Donnelly area

Policy group	Policy detail
1. Licence assessment	
1.1. Applications proposing to construct a dam	To assess applications for permits to construct a dam, the department requires the applicant: • to provide design characteristics (such as location, dam level, surface contours) and the maximum storage capacity of the dam • to advertise in a local and state-wide newspaper at their cost where it is considered that the impacts of the proposed dam will be significant or it is of public interest and • for large dams (those exceeding 50 000 kL), to provide a capacity survey from a professional surveyor.
1.2. Applications proposing encroachment of dam water on neighbouring properties	1.2.1. For permit and licence applications where the storage of water will encroach onto a neighbouring property owned by another party, the department will require the applicant to do one of the following before the permit or licence will be granted: • amalgamate all flooded land under a single certificate of title • obtain an easement on the flooded portion of the neighbouring land • enter into a deed of agreement with the affected neighbour and lodge a 'subject to claim' caveat on the adjoining land title. 1.2.2. For permit and licence applications where the storage of water will encroach onto a publicly owned neighbouring property, the department requires the applicant to do one of the following before the permit or licence will be granted: • purchase or exchange the affected public land from the vestee • lease the affected public land from the vestee.
1.3. Applications in fully-allocated subareas	Once a subarea is fully allocated, the department will refuse applications for new entitlements (or increases to existing entitlements) for high reliability water. However, we can discuss other options such as trading or transfers and the potential for taking lower reliability water.

Table 3 (continued)
Policies specific to surface water licensing in the Warren–Donnelly area

Policy group	Policy detail
2. Licence conditions	
2.1. Licence conditions	2.1.1. The department may require licensees to complete water use return forms annually, as a condition on their licence, if: • the storage capacity of their dam/s is larger than the consumptive water uses specified on their licence • they are in a subarea that is approaching full allocation (greater than 70 per cent allocated) or • it is necessary for compliance. The need for water use returns will be assessed at licence renewal and following compliance audits. 2.1.2. The department may impose conditions on licences that state the times in the year when flows must be allowed to bypass dams.
3. Stock and domestic water use	
3.1. Stock and domestic dams	3.1.1. On-stream dams for non-intensive or non-commercial (stock and domestic[1]) purposes are exempt from licensing to take water, unless they exceed a storage capacity of 8000 kL. Note: The construction of dams for stock and domestic purposes require a permit to interfere with bed and banks. 3.1.2. The department requires the taking of water from on-stream dams larger than 8000 kL capacity for stock and domestic purposes to be licensed, unless the dams are on a watercourse arising on the property. Licences for stock and domestic dams larger than 8000 kL capacity will include 'storage of surface water' as an authorised water use in addition to stock and domestic water use. The licence entitlement will generally equal the storage capacity of the dams.

1 Dams for stock and domestic use generally have a storage capacity of less than 8000 kL.

Table 3 (continued)
Policies specific to surface water licensing in the Warren–Donnelly area

Policy group	Policy detail
4. Managing impacts	
4.1. Environmental impact management	4.1.1. The department requires all new on-stream dams with the potential to have an adverse effect on downstream users and the environment to have a low-flow bypass system. 4.1.2. The department may require new on-stream dams to include structures that allow the migration of aquatic species. This will be determined during the permit application assessment. 4.1.3. At licence renewal, where practical, the department may require licensees with an existing on-stream dam to construct a flow bypass system to allow summer flows to bypass the dam, and/or structures that allow the migration of aquatic species. 4.1.4. The department will not approve new applications proposing to take surface water (including by direct pumping) from a watercourse in periods of low flow (generally in summer), unless the ecological needs of the system can still be met.

State-wide licensing policies

The department develops policies that apply to all water resources across the state, including the Warren–Donnelly area. Table 4 outlines the main strategic and operational policies that apply to the Warren–Donnelly area. An up-to-date list of the policies is available on our website: <www.water.wa.gov.au>.

Table 4
Main strategic and operational policies that apply to the Warren–Donnelly area

Policy	Application
Licence assessment	
Operational policy no. 5.11 – Timely submission of required further information (DoW 2009d)	The department's approach to managing timelines when a licensee is requested to submit additional information in support of their licence application.
Statewide policy No. 9 – Water licensing – staged developments (WRC 2003a)	The department's approach for securing sufficient water entitlements for staged developments. The policy: • applies to proponents who are unable to use their total entitlement within two years of commencing the development • ensures that licensed entitlements are actively used for the benefit of the licence holder, the community and the state • reduces the possibility of purely speculative bids for limited water resources • does not apply to water service providers or water transactions and transfers.
Licence conditions	
Strategic policy 5.03 – Metering the taking of water (DoW 2009b) *Guidelines for water meter installation* (DoW 2009c) *Rights in Water and Irrigation (Approved Meters)* Order 2009	States the department's position on metering the taking of water in Western Australia. Under this policy, the department is most likely to impose metering conditions on individual licensees to assess and monitor trades.
Operational policy no. 5.8 – Use of operating strategies in the water licensing process (DoW 2010a)	Guidance on when an operating strategy is required and what it should contain, including: • the water licence applicants who are likely to require an operating strategy • how operating strategies form part of the conditions of a water licence • how licence applicants should develop an operating strategy • the licensee's responsibilities in complying with an operating strategy.

Table 4 (continued)
Main strategic and operational policies that apply to the Warren–Donnelly area

Policy	Application
Managing water to maximise use	
Operational policy no. 5.13 – Water entitlement transactions for Western Australia (DoW 2009a)	The rules for a trade, transfer or lease of all, or part of, a licensed water entitlement.
Operational policy no 5.10 - Managing breaches of the Rights in Water and Irrigation Act 1914 on watercourses in Western Australia (DoW 2011a)	How the department deals with complaints and disputes between neighbours along the same stream or watercourse.
Enforcement and prosecutions policy (DoW 2008)	Failure to comply with a licence or a licence condition will result in the department taking action.
Statewide policy no. 11 – Management of unused licensed water entitlements (DoW 2003b)	The circumstances when whole or portions of licensed entitlements may be recouped by the department to maximise development opportunities, including: • if it is proved that the entitlements are consistently unused • extenuating circumstances cannot be provided. If water taken to be stored in a dam is a specified use on the licence it is not considered to be unused water.

4.6 Factors that may affect future water allocation and licensing

High reliability water within the allocation limit is still available in some subareas and there are a number of options available for obtaining this water. We are also considering the potential for taking water above the allocation limit where high reliability water is no longer available.

High reliability water

The allocation limits in this plan define the amount of water that can be abstracted in most years without detriment to existing individual users. The taking of high reliability water is managed through licences. Additional high reliability water can be obtained via:

- new licence entitlements or increases to existing licence entitlements, if water is available within the allocation limit
- a permanent or temporary trade or a transfer of an existing licence entitlement within the same subarea
- increased efficiency.

Lower reliability water

In years that are wetter than the benchmark dry year, there will be flows in excess of that required to meet the licence entitlements under high reliability allocation limits.

The department will continue to work with water users in the Warren–Donnelly plan area to trial ways to take additional water in high flow years.

This water is referred to as low reliability water because it would not be available in all years. Access to low reliability water would only be allowed when and where it would not affect the ability of licensees to take their full licensed entitlement within the allocation limit.

The entitlement would be controlled by conditions or 'variable take rules' that specify times, rates, release rules or other circumstances under which water can be taken. This may require the licensee to modify their dam infrastructure or change how they operate it.

This two tier approach to high and low reliability water is an appropriate way of responding to the annual variation of streamflows in the Warren–Donnelly catchments without increasing management and risk to all water users.

Future large scale irrigation schemes and water supply

Development of large scale infrastructure such as a large dam with cross-catchment distribution networks is another way to access additional water. In the future this might need to be considered to supply more water to areas where there is demand, but where there is no scope for more or larger self-supply dams. Distribution of water from a large dam and pipe network could be managed through an irrigation cooperative.

Manjimup has been identified as a 'SuperTown' under a state government initiative to promote decentralisation and stimulate growth in regional areas. Larger scale infrastructure is a potential means to meet water demand should there be an associated expansion of horticulture.

Consideration of future large scale irrigation schemes is beyond the scope of this allocation plan.

Chapter Five

Monitoring program for the Warren–Donnelly area

The Department of Water monitors water level, salinity and temperature at gauging stations within the plan area as part of the state reference network (Figure 6). The department used data from these monitoring sites (including those currently not operating) to develop this plan.

Real-time daily river level and streamflow data for two gauging stations in the plan area, Tone River at Bullilup (607007) and Lefroy Brook at Rainbow Trail (607013), is available from the water resources data page of our website <www.water.wa.gov.au>.

The monitoring program for this plan sets out how the department will monitor water resources in the plan area so that the effectiveness of the plan can be evaluated and so we can increase our understanding of the water resource over time.

The department will use the monitoring program to:

- assess flows at key points
- assess whether we are meeting the water resource objectives of this plan
- check how the rivers are changing over time.

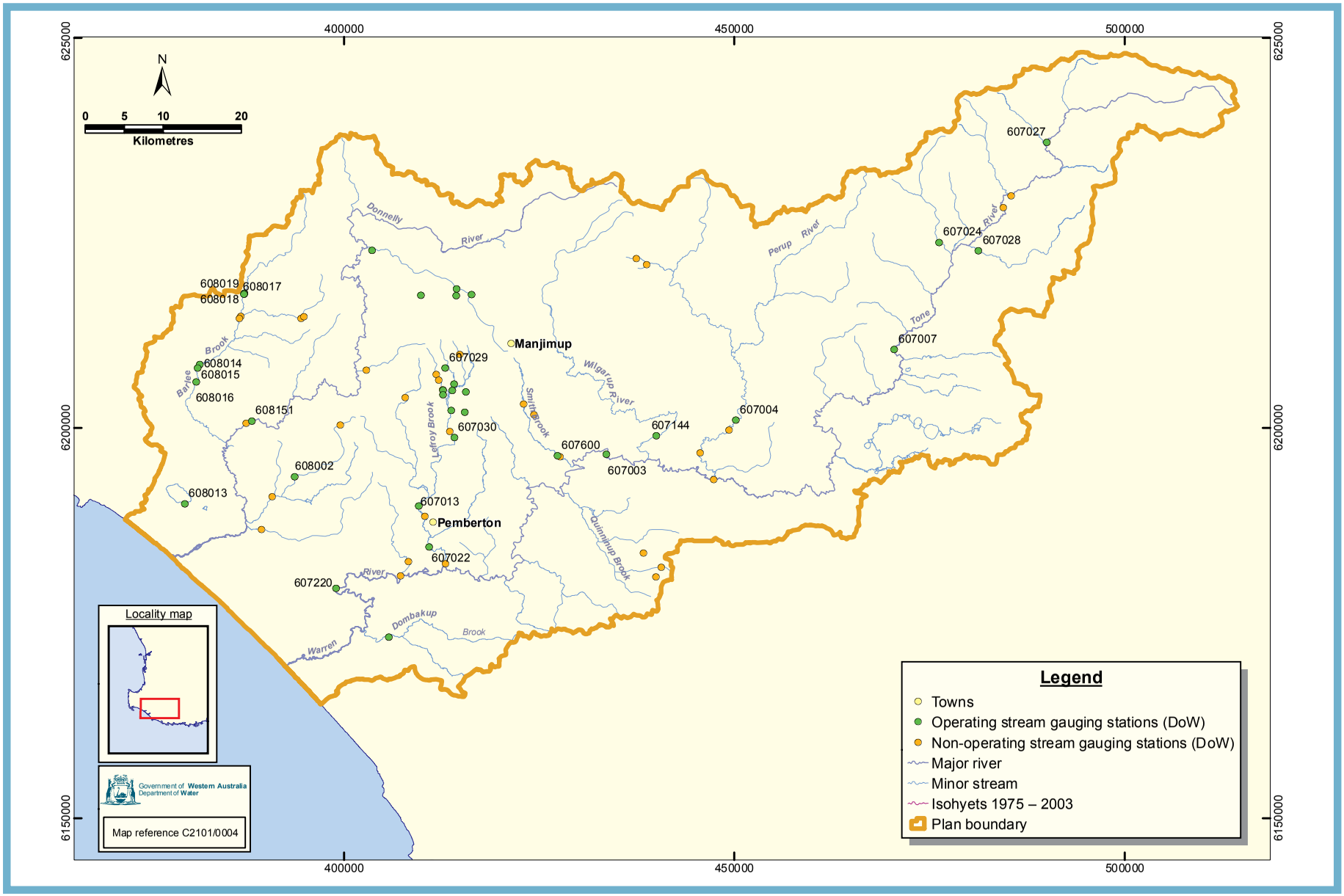

Figure 6

Department streamflow gauging stations in the plan area

Warren–Donnelly surface water allocation plan

5 Monitoring program for the Warren–Donnelly area

5.1 Evaluating water resource objectives

The department will use the monitoring and performance indicators in Table 5 to:

- assess whether the water resource objectives of the plan continue to be met
- assess streamflow data from Barlee Brook as an indicator of ecological flows for other catchments
- assess streamflow data the highly developed Upper Lefroy (at Channybearup) as an indicator of reliability of supply to water users.

Table 5
Monitoring in the Warren–Donnelly area

Objective		Representative subarea for the objective	Performance indicators	How will we assess it?
a	Flow regimes that supply licence entitlements in almost all years.	Upper Lefroy	Frequency and durations of flow and feedback from water users.	Assess streamflow at the Channybearup site (AWRC reference 607002) and results of surveys (see actions 2 and 3 in Table 6).
b	Flow regimes that maintain existing environmental and social values.	Barlee Brook	Frequency and duration of flow is within ecological flow thresholds during the evaluation period.	Assess streamflow at the upper and lower Barlee Brook sites (AWRC reference 608019 and 608015).
c	Sufficient flow retained for the existing public water supply reserves.	Record Brook	Streamflow can provide total volume (500 ML) of public water reserve.	Model streamflow at Record Brook using rainfall site One Tree Bridge (BOM reference 009908) and check against nearby operating gauging stations.
d	Sufficient freshwater flows in the Warren River to complement the salinity recovery targets.	Lower Warren	Salinity is tracking towards the long-term catchment recovery target of 500 mg/L by 2030.	Assess salinity at Barker Road Crossing gauging site (AWRC reference 607220).

Chapter Six

Implementing and evaluating the plan

The Department of Water will implement the *Warren–Donnelly surface water allocation plan* by:

- licensing in accordance with the allocation limits for each subarea in Chapter 3
- issuing licences according to the approaches detailed in Chapter 4
- monitoring and reviewing measurement data as set out in Chapter 5
- following the other strategies listed in Section 2.3.

Once the plan is in place, the department will evaluate whether the plan objectives are being met through annual plan evaluations.

This chapter sets out additional actions to implement and evaluate the *Warren–Donnelly surface water allocation plan,* including how to identify if and when a new plan is required.

6.1 Implementing the plan

The department has identified a number of actions that we will carry out over the next seven years (Table 6).

We identified these actions during our planning process by:

- considering the gaps in our current knowledge and information
- reviewing current management arrangements
- assessing what information we need for future planning.

6 Implementing and evaluating the plan

Table 6
Actions to implement the Warren–Donnelly surface water allocation plan

	Action	Responsibility[1]	Timeline
Licensing			
1	Ensure that licensees submit water use information to the department in accordance with the conditions specified on their licence.	South West Region	Annually
2	Undertake targeted compliance and enforcement action to ensure that volume of water taken by licensees is within their licensed entitlements.	South West Region	Annually
3	Survey licensed users in targeted subareas to see how full dams are at the beginning and end of the irrigation season.	South West Region	Annually
Monitoring			
4	Design and implement a monitoring program for selected irrigated catchments that: • monitors flows at the downstream end of the catchment • monitors the reliability of existing licensed users.	Water Measurement and Rural Water Planning, Water Resource Assessment and Water Allocation Planning branches	2013
5	Identify ecological flow targets for Barlee Brook.	Water Allocation Planning Branch	2012
6	Implement a program to monitor the frequency and duration of flows at Barlee Brook.	Measurement and Water Information, Surface Water Assessment and Water Allocation Planning branches	2013

1 Department of Water branch that is responsible for implementing the actions in the plan area.

To prepare for the next phase of allocation planning in the Warren–Donnelly area, we identified a number of actions that will improve our knowledge of water use and how we manage supply for consumptive use and the environment (Table 7).

Table 7
Actions to support future planning

	Action	Responsibility[1]	Timeline
Licensing			
7	Develop and test a dam reliability tool.	Water Allocation Planning and Water Resource Assessment branches	2012 onwards
8	Trial options to access lower reliability water.	Water Allocation Planning and Water Resource Assessment branches and South West Region	2012 onwards

1 Department of Water branch that is responsible for implementing the actions in the plan area.

6.2 Evaluating the plan

The department will regularly evaluate whether the plan outcomes are being achieved and if the water resources covered by the plan are meeting the resource objectives. Results of evaluating the plan will be published in an annual evaluation statement.

The evaluation statement will include:

- the allocation status for each subarea, including any changes in licence entitlements since the last year
- the status of plan actions due in the evaluation period
- the department's performance against the plan outcomes and resource objectives
- how we will adapt our water resource management (if necessary).

The statement will be available on the department's website or by contacting the department's South West regional offices in Bunbury or Manjimup.

Appendices

Warren–Donnelly surface water allocation plan

A

Appendix A
Map information and disclaimer

Datum and projection information

Vertical datum: Australian Height Datum (AHD)
Horizontal datum: Geocentric Datum of Australia 94
Projection: MGA 94 Zone 50
Spheroid: Australian National Spheroid

Project information

Client: Emily Harrington

Map author: Gary Floyd and Shona Shah

File path: J:\gisprojects\Project\330\80000_89999\3308440_WAP\00003_Warren_Donnelly_Map_Updates\mxd... For all maps

File name: J:\gisprojects\Project\330\80000_89999\3308440_WAP\00003_Warren_Donnelly_Map_Updates\mxd... For all maps

Compilation date: 15 December 2011

Disclaimer

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Sources

The Department of Water acknowledges the following datasets and their custodians in the production of this map:

State Roads – Landgate – 1999

Western Australian Towns – Landgate – 2011

Spatial Cadastral Database (SCDB) – Landgate – 2012

WA Coastline, WRC (Poly) – DoW – 2006

Hydrography, Linear (Hierarchy) – DoW – 2007

Hydrographic Catchments - Basins – DoW – 2012

Surface Water Allocation Subareas – DoW – 2012

WIN Surface Water Sites – DoW – 2012

RIWI Act, Surface Water Areas and Irrigation Districts – DoW – 2007

Glossary

Abstraction	Withdrawal of water from any surface water or groundwater source of supply.
Allocation limit	Annual volume of water set aside for use from a water resource.
Consumptive use	Water used for consumptive purposes considered as a private benefit including irrigation, industry, urban and stock and domestic use.
Licence (or licensed entitlement)	A formal permit which entitles the licence holder to take water from a watercourse, wetland or underground source under the *Rights in Water and Irrigation Act 1914*.
Over-allocation	Where the total volume of water allocated out of the resource (that could be abstracted at any time) is over the set allocation limit.
Reliability	The frequency with which a water licence holder can take their full licensed volume.
Resource	See surface water resource.
Self-supply	Water users (individuals or organisations) who divert from a source for their own individual requirements.
Social value	An in situ quality, attribute or use that is important for public benefit, welfare, state or health.
Subarea	A subdivision, within a surface or groundwater area, defined to better manage water allocation. Subareas boundaries are not proclaimed and can therefore be amended without being gazetted.
Surface water resource	Defined area for allocation and licensing decisions for a particular plan area. For this plan, surface water resource boundaries are the same as surface water allocation subareas.
Water use return	A form that some licensees are required to submit to the department each year, as a condition on their licence, that provides information on how much water they stored in their dam/s and used in the past year.

Glossary

Volumes of water			
One litre	1 litre	1 litre	(L)
One thousand litres	1000 litres	1 kilolitre	(kL)
One million litres	1 000 000 litres	1 megalitre	(ML)
One thousand million litres	1 000 000 000 litres	1 gigalitre	(GL)

List of shortened forms	
AWRC	Australian Water Resources Council
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia & New Zealand
Beckwith	Beckwith Environmental Water Planning Pty Ltd
BOM	Bureau of Meteorology
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEC	Department of Conservation and Environment
DLI	Department of Land Information
DoP	Department of Planning
DoW	Department of Water
ESY	Ecologically sustainable yield
MGA	Map Grid of Australia
REG6	Regional model 6
REG75	Regional model 1975
RIWI	Rights in Water and Irrigation Act 1914
SDL	Sustainable diversion limits
SKM	Sinclair Knight Merz
UoM	University of Melbourne
WIN	Water Information Network
WRC	Water and Rivers Commission

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