

SECTION 1: WATER RESOURCES

Water Resource Use

The *Water Resources Act 1998* (the Act) came into full effect in December 1999, providing the Territory with the tools to manage its water resources. The Act provides for the preparation of Environmental Flow Guidelines used to determine flows necessary to protect all ACT water bodies. These guidelines are reviewed every five years. The first review has been recently completed with revised Environmental Flow Guidelines available at <http://www.environment.act.gov.au/airandwater/water/environmentalfloows>.

The Act also requires the preparation of a 'Water Resources Management Plan', which was recently updated as *Think water, act water*. The 'Water Resources Management Plan' describes the water resources of the Territory, quantifies environmental flows on the basis of the Environmental Flow Guidelines, identifies water available for use, and identifies the volumes of water that are being used and those available for allocation..

Water allocations are only issued in accordance with this plan and thus ensure that the total quantity of water that could be used from ACT water resources is sustainable. Licence conditions are used to ensure that water allocations are only taken from ACT water resources when and where the water is available. These measures ensure the Territory's water resources are managed appropriately. Water catchments boundaries used for this purpose are set out in Figure 2.

The Act makes it clear that control of all water use in the Territory is vested in the Territory. This means that a licence to take water is needed to use groundwater, water from streams and rivers and water from dams. The taking of surface water for stock and domestic purposes, where, water is collected from the lessee's property or where their property directly abuts a waterway, does not require a licence. ACTEW hold a licence to take water and so customers of ACTEW are not required to hold a licence to take water when using water supplied by ACTEW.

Fostering Sustainable Water Resource Use Through Regulation

The Minister generally issues Water Allocations (Table 2) and the Environment Protection Authority (EPA) issues Licences to Take Water (Table 3) Bore Construction Permits and Water Control Structure Permits (needed for construction of dams), subject to conditions and volume considerations. Together these controls allow the EPA to manage the use of water resources in an environmentally sensitive manner. For example, when issuing a licence to take water, a major consideration of the EPA is whether the water needed is within the sustainable limits for the subcatchment, as specified in the Water Resource Management Plan (*Think water, act water volume 3, 2004*). Full details of Water related allocations, licences and permits issued by the EPA are available for inspection in the Water Resource Act Register. Appointments for inspection can be made by contacting 6207 5728.

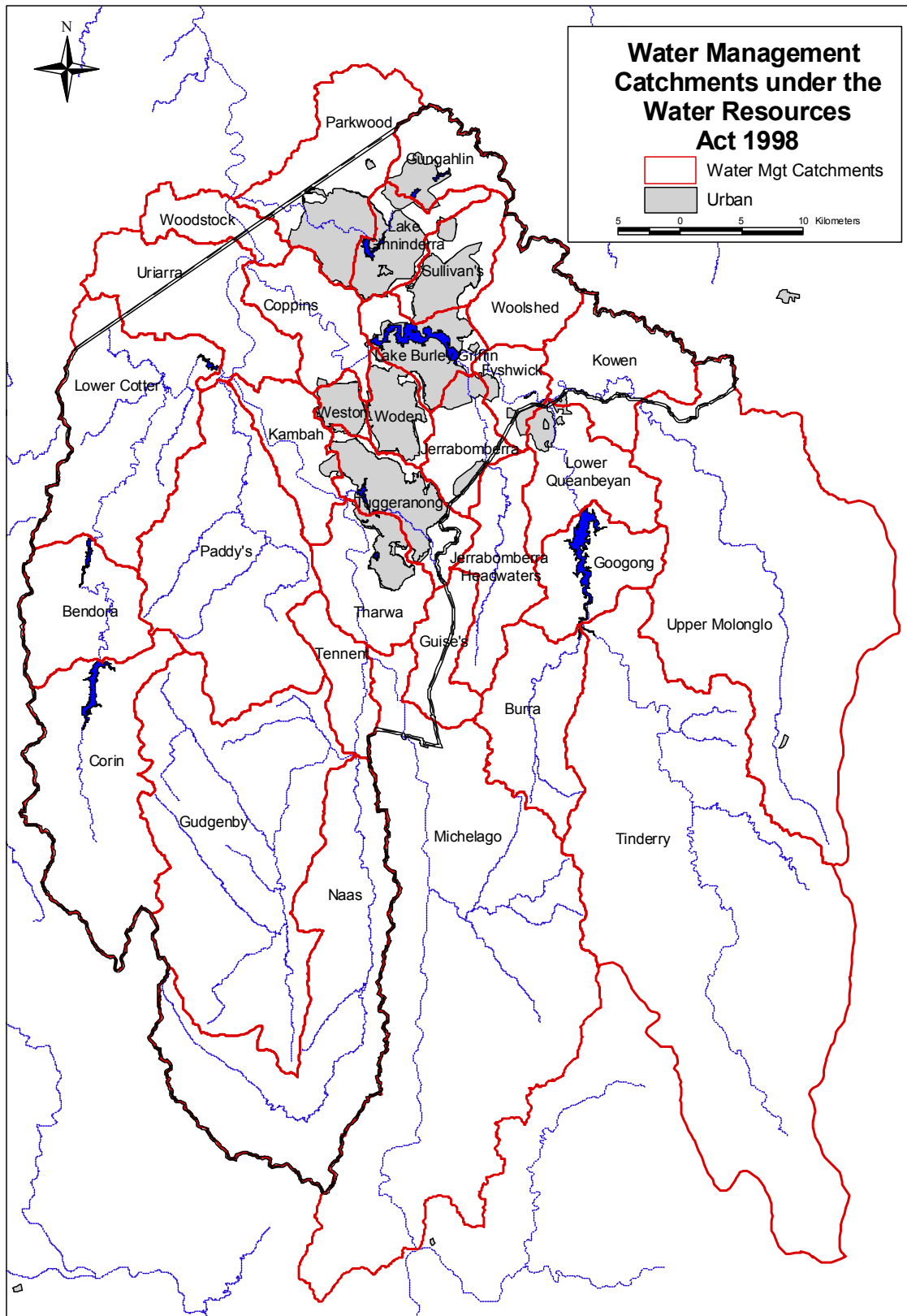


Figure 2: Boundaries of Water Management Catchments Under the *Water Resources Act 1998*.

Water Allocations

During this reporting period there has been a total of fifteen allocations issued as a result of lease surrender/regrant by existing licence holders. The granting of allocations for new or additional volumes of water was suspended during this period by the moratorium. The superscript in the table below (subcatchment column) indicates the number of allocations granted within each subcatchment. The table shows that Fyshwick had the most allocations granted and of these six, four were granted for the purposes of agricultural irrigation and stock and domestic use, one for commercial nursery use and the other for stock and domestic use only.

Table 2. The number of allocations and allocated water volume within ACT subcatchments.

Subcatchment	Number of Allocations	Allocated Water Volume (ML)
Bendora	1	21000
Burra	1	1600
Coppins ¹	1	81
Corin	1	29700
Fyshwick ⁶	15	130
Googong	1	1200
Gudgenby	2	18
Guises ¹	1	2
Gungahlin	2	311
Jerrabomberra ¹	3	58
Kambah ¹	2	194
Kowen	1	2
Lake Burley Griffin ¹	2	85
Lake Ginninderra	4	209
Michelago	0	0
Naas	0	0
Paddys ¹	3	79
Parkwood	1	12
Sullivans	5	349.5
Tennent	0	0
Tharwa ²	8	89
Tinderry	5	10280
Tuggeranong ¹	2	55
Uriarra	2	18
Weston	2	11
Woden	2	39
Woolshed	6	141
Total	73	65663.5

Note: an allocation is not necessary under the *Water Resources Act 1998* where groundwater is taken from a lease that is dated before 11 December 1998, although a Licence to Take Water is required. Consequently the total licensed volume in Table 3 is larger than the total allocated volume in Table 2.

Licences to Take Water

There has continued to be a demand for water licences during this reporting period, predominantly within urban subcatchments. This is likely to be caused by the continued implementation of water restrictions on mains water use and the increase in Water Abstraction Charges for potable water. However, there continues to be a restriction on granting access to new or augmented use of water during the moratorium period, as the development of a more equitable approach for allocating water continues. Two Licences to take Water were granted in the Lake Burley Griffin subcatchment as a result of court decisions under an exemption from the moratorium specified in the Act

Table 3: The number of Licences to Take Water by subcatchment and water type. * These subcatchments include volumes from ACTEW's licence for potable water supply.

Subcatchment	Number of Licences to Take Water			Total Licenced Volume (ML)
	Groundwater (only)	Surface Water (only)	Surface + Groundwater	
Bendora*		1		21000
Burra*		1		1600
Coppins	1			3
Corin*		1		29700
Fyshwick	9	11	1	1231
Googong*		1		1200
Gudgenby	1	1	1	31
Guises	2			4
Gungahlin	1		1	311
Jerrabomberra	5	1	1	251
Kambah	2		1	203
Kowen	2			6
Lake Burley Griffin	57			76.5
Lake Ginninderra	4	1	1	231
Naas	1			2
Paddys	2	2	1	119
Parkwood	4			21
Sullivans	5	1	2	370.5
Tennent	2			3
Tharwa	5	3		58
Tinderry*		1		10280
Tuggeranong	3	1		56.5
Upper Molonglo	1			2
Uriarra		2	1	18
Weston	5			24
Woden	3	1		189
Woolshed	3	3	2	222
Total	114	32	12	67212.5

Note: while the table above is definitive in its depiction of total licensed volume of water in the ACT, it is recognised that there may still be unlicensed bores in use and existing licence holders may exceed their licenced volume. There is a monitoring and compliance program in place to address these issues.

Climate and Water Resources

The availability of the ACT's water resources is influenced by rainfall. Groundwater recharge in the ACT's low yield fractured rock aquifers is closely linked to recent rainfall history, unlike other groundwater sources such as the great artesian basin which has stored rainfall from millions of years ago. Stream flow in the ACT is directly linked to local rainfall except for the Murrumbidgee and Molonglo Rivers, which have substantial areas of their catchment outside the ACT.

Rainfall in the ACT is strongly affected by the landform. In the mountainous region to the west of the Murrumbidgee River, annual average rainfall ranges from 800-1000 mm. The flatter tablelands on which Canberra is built are in a rain shadow area and the annual rainfall reaches 600-700 mm. In this 12-month reporting period the annual average rainfall was 629mm, which is up from last year 585mm and slightly higher than the long-term average for Canberra Airport of 622.8 mm.

Rainfall is measured at numerous sites in the ACT. Rainfall in an urban area (Charnwood Road in Belconnen) and in a water supply catchment area (Cotter Hut, above Corin Reservoir) is depicted in Figure 3. Both the long-term average monthly rainfall from data collected since 1990, and the monthly rainfall for the 2005-2006 reporting period are presented.

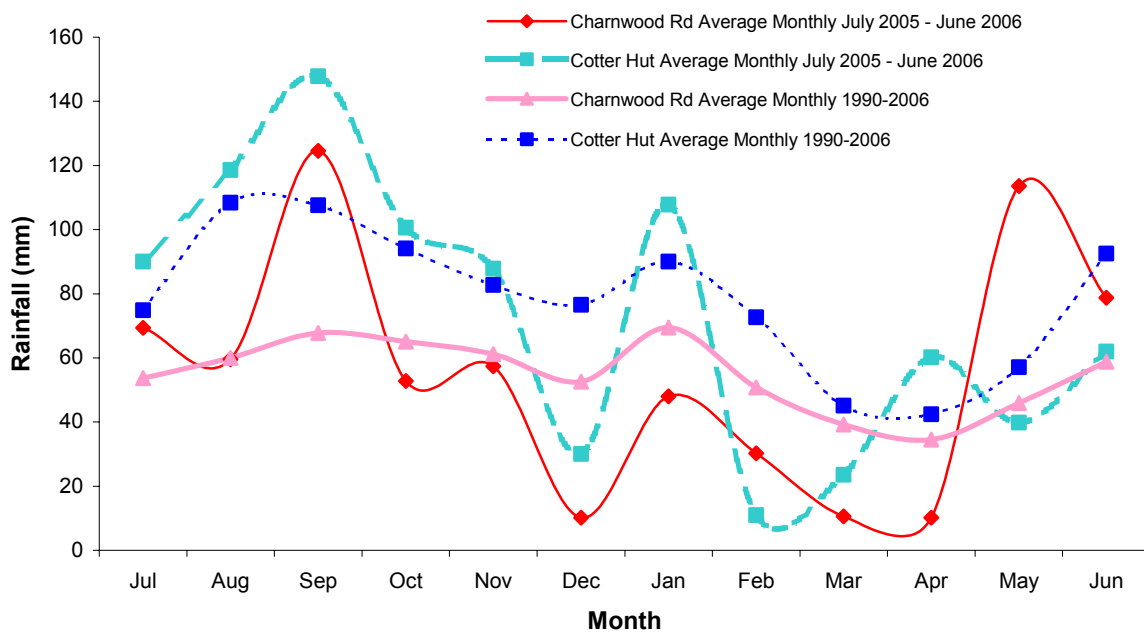


Figure 3. Comparison of 2005-2006 average monthly rainfalls in Belconnen near Charnwood Road and Cotter Hut in the Corin Reservoir Catchment with the long term average monthly rainfall.

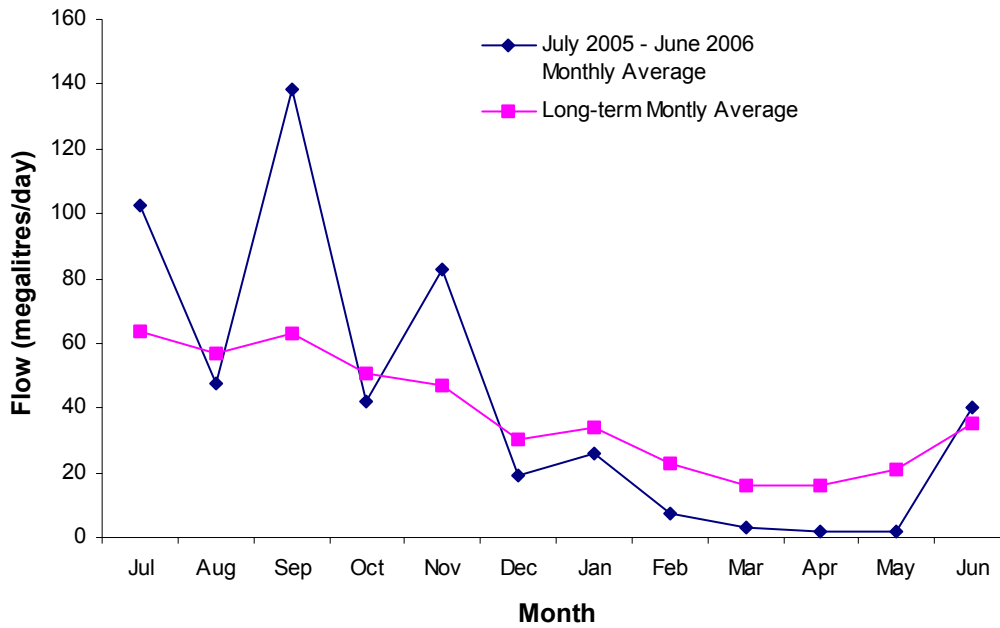


Figure 4. Average monthly flow July 2005 to June 2006 in Ginninderra Creek (410750) upstream of Charnwood Road compared with the long-term average monthly flow for that site.

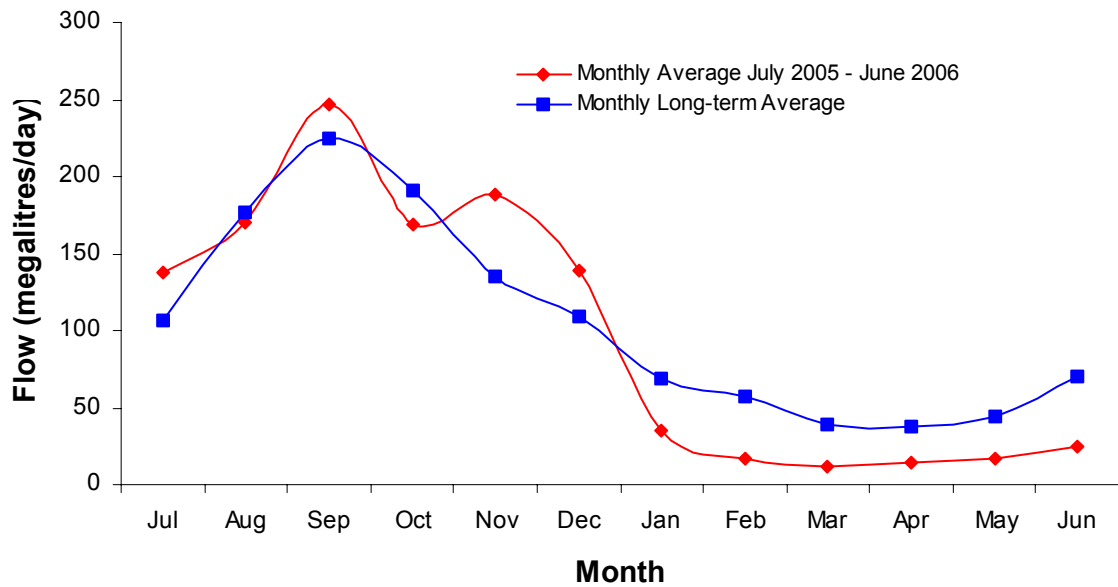


Figure 5. A comparison of the average monthly flow (July 2005–June 2006) to the long-term average monthly flow for a site upstream of Corin Reservoir.

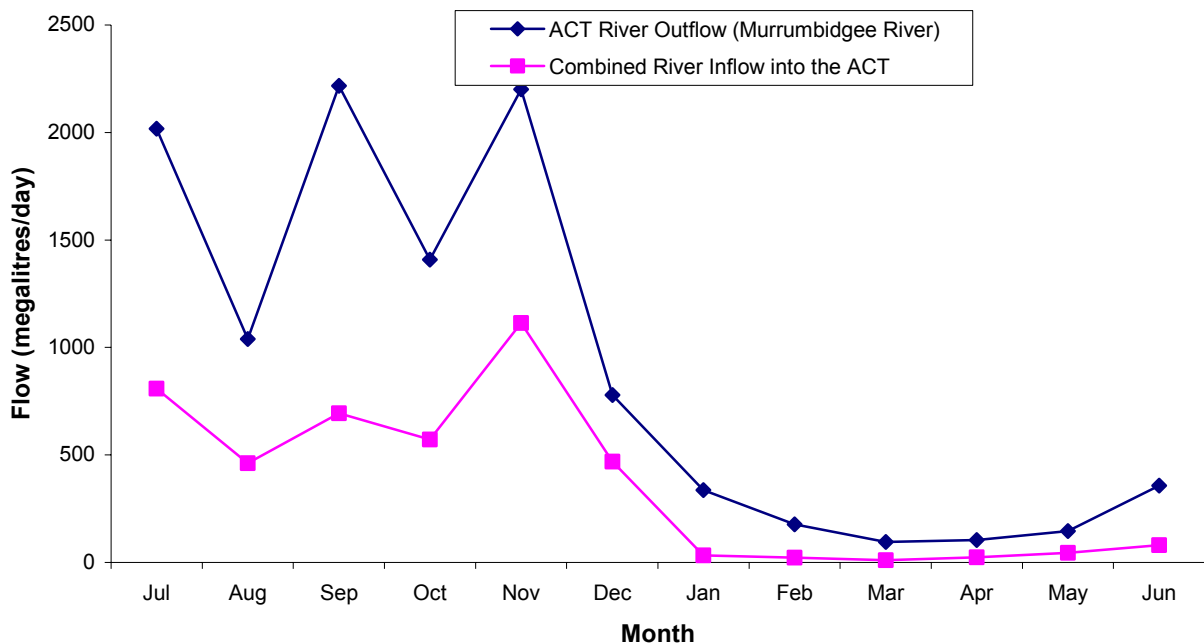


Figure 6. A comparison of the average monthly inflows into the ACT (combined monthly data for the Murrumbidgee, Molonglo and Queanbeyan Rivers) with the average monthly outflows from the ACT (Murrumbidgee River, just after the downstream exit of the ACT border, at Hall Crossing) for the July 2005 to June 2006 period.

The long-term average annual rainfall since 1990 in Belconnen at the Charnwood Road site is 668mm and the annual rainfall for this reporting period, 1 July 2005 to 31 July 2006, was essentially equivalent to the long term average at 665 mm. The site at Cotter Hut has a long-term annual rainfall of 946 mm and for this reporting period the total rainfall was 879mm. This below average rainfall follows the previous years higher than average rainfall. Above average rainfall would be needed for some time to fill the water supply reservoirs.

Peaks in the stream hydrograph for the urban area (Figure 4) reflected significant spring and autumn rain (Figure 3) but no such pattern was evident for the water catchment (Figure 3 and Figure 5). Overall stream flow for the urban area was above the long-term average however, it was below the long-term average for the water catchment. Ginninderra Creek, which drains a highly urbanised catchment with large areas of impervious surfaces, showed quick responses to the high rainfalls occurring in spring and autumn (Figure 3 and Figure 4).

In spite of general water consumption the ACT remains a net exporter of water into the Murrumbidgee River. A comparison of the volume of water flowing (in the case of the Queanbeyan River water that would flow if not for Googong Dam) into the ACT with the volume of water leaving the ACT is shown in Figure 6.