

Supplementary Material

Table S1. Environmental watering volumes (ML) used (held and planned environmental water) between 2007-08 and 2020-21. Note: at the time of writing, 2020-21 data for each catchment was not available, only CEWO net total use and total environmental water use, from DAWE (2021).

Catchment	2007-08		2008-09			2009-10			2010-11			2011-12			2012-13			2013-14		
	State	Others ¹	CEWH	State	Others ²	CEWH	State	Others ³	CEWH	State	Others	CEWH	State	Others	CEWH	State	Others	CEWH	State	Others
Warrego	0		0	0	0	16,620	0	0	16,000	0	0	33,880	0	0	0	0	0	506	0	0
Condamine-Balonne	0		0	0	0	0	0	0	0	0	0	3,060	0	0	64,946	0	0	22,282	0	0
Moonie	0		0	0	0	1,420	0	0	0	0	0	1,400	0	0	1,415	0	0	1,000	0	0
Border Rivers	0		0	0	0	0	0	0	0	0	0	1,000	0	0	2,558	4,000	0	4,000	12,907	0
Gwydir	0		0	0	0	0	70	0	13,056	4,727	5,000	1,206	592	16,500	27,709	20,365	3,074	31,915	0	1,000
Namoi	0		0	0	0	0	0	0	0	0	0	0	0	0	7,727	0	0	0	0	0
Macquarie-Castlereagh	1,000		0	0	0	9,300	1,050	16,000	26,888	33,322	139,101	40,000	25,251	88,229	100,000	37,718	128,063	10,000	10,985	43,675
Barwon-Darling	0		0	0	0	19,000	145	0	1,100	0	0	0	0	0	25,616	0	0	13,000	0	0
Lower Darling	0		0	0	0	19,000	0	0	6,580	5,000	13,820	6,000	0	0	0	0	0	47,000	8,243	0
Northern Basin total	1,000		0	0	0	65,340	1,265	16,000	63,624	43,049	157,921	86,546	25,843	104,729	229,971	62,083	131,137	129,703	32,135	44,675
Lachlan	20,000		0	0	0	0	0	0	6,722	3,612	0	20,159	7,329	0	51,283	15,373	0	22,794	329	0
Murrumbidgee	0		0	2,000	0	48,740	7,406	30,372	193,347	17,540	208,288	82,979	8,415	132,003	156,000	18,204	26,787	133,280	11,144	106,398
Central Murray (NSW, VIC)	0		0	17,200	1,300	6,000	6,816	0	19,767	169,174	418,047	101,339	226,271	241,550	186,351	34,871	5,452	117,031	90,297	92,853
Ovens	0		0	0	0	50	0	0	0	0	0	70	0	0	20	0	0	20	0	0
Goulburn-Broken	3,000		0	4,000	0	0	0	0	52,024	9,000	0	144,490	61,038	0	242,378	3,986	50,344	255,000	33,349	64,000
Campaspe	0		0	0	0	0	0	0	2,100	0	0	6,532	0	7,152	6,821	6,660	3,406	7,000	6,280	1,788
Loddon	0		0	1,000	0	0	0	0	400	0	0	1,564	6,037	0	2,746	10,654	0	2,775	6,593	0
Wimmera	0		0	0	0	0	0	0	0	44,000	0	0	26,815	0	0	319	0	0	19,797	16
Lower Murray (SA, NSW, VIC)	16,000		5,524	20,000	5,444	70,813	286,306	52,882	149,245	92,371	166,320	328,756	3,932	142,044	786,918	53,238	289,103	579,200	89,082	230,951
Southern Basin total	39,000	16,522	5,524	44,200	6,744	125,603	300,528	83,254	423,605	335,697	792,655	685,889	339,837	522,749	1,432,517	143,305	375,092	1,117,100	256,871	496,006
MDB total	40,000	16,522	5,524	44,200	6,744	190,943	301,793	99,254	487,229	378,746	950,576	772,435	365,680	627,478	1,662,488	205,388	506,229	1,246,803	289,006	540,681
Net total use (CEWO)*			13,000			154,000			387,000			680,000			1,272,000			982,000		
Grand total all sources	56,522		56,468			591,990			1,816,551			1,765,593			2,374,105			2,076,490		
Grand total with CEWO net total use			63,944			555,047			1,716,322			1,673,158			1,983,617			1,811,687		

Table S1 (continued).

	2014-15			2015-16			2016-17			2017-18			2018-19			2019-20			2020-21		
Catchment	CEWH	State	Others	CEWH	State	Others*	CEWH	State	Others	CEWH	State	Others	CEWH	State	Others	CEWH	State	Others	CEWH	State	Others
Warrego	2,542	0	0	859	0	0	26,980	0	0	3,347	0	0	15,738	0	0	16,200	0	0			
Condamine-Balonne	17,389	0	0	10,453	0	0	45,762	0	0	3,985	0	0	0	0	0	0	0	0			
Moonie	1,415	0	0	201	0	0	1,415	0	0	2,323	0	0	1,022	0	0	4,500	0	0			
Border Rivers	1,812	25,080	0	1,047	0	0	23,526	0	0	9,116	0	0	7,400	0	0	0	0	0			
Gwydir	56,639	0	29,895	8,400	100	4,750	22,847	3,000	21,000	28,290	15,748	3,000	58,150	8,338	52,000	8,500	1,900	5,600			
Namoi	0	0	0	0	0	0	9,109	0	0	5,357	0	0	5,500	0	0	0	0	0			
Macquarie-Castlereagh	10,000	6,037	17,745	14,239	4,422	36,393	54,520	8,258	26,373	50,660	19,485	64,232	45,722	24,434	51,072	3,933	650	0			
Barwon-Darling	1,761	0	0	3,820	0	0	26,796	0	0	10,600	18,000	0	6,940	9,662	0	0	0	0			
Lower Darling	0	0	0	3,820	180	0	160,453	46,330	47,980	2,738	0	23,072	0	0	0	0	0	0			
Northern Basin total	91,558	31,117	47,640	42,839	4,702	41,143	371,408	57,588	95,353	116,416	53,233	90,304	140,472	42,434	103,072	33,133	2,550	5,600			
Lachlan	5,000	1,471	0	36,022	12,092	0	29,492	6,250	5,084	35,188	2,986	17,295	18,173	8,687	9,271	31,743	9,686	0			
Murrumbidgee	152,558	68,661	74,603	108,327	15,954	103,613	241,465	45,367	243,592	179,249	16,148	74,602	62,296	117,524	16,100	47,941	3,500	26,809			
Central Murray (NSW, VIC)	63,062	32,332	13,955	424,513	43,740	91,737	349,177	127,286	13,118	392,996	20,358	2,044	135,611	22,311	76,998	618,850	75,765	47,456			
Ovens	70	0	0	70	0	0	70	0	0	123	0	0	123	39	0	50	39	0			
Goulburn-Broken	244,007	31,454	54,349	220,083	13,019	27,689	182,253	27,500	20,000	299,211	42,650	77,559	227,705	26,480	26,468	339,040	75,816	0			
Campaspe	5,791	22,805	2,574	3,289	10,336	889	0	5,551	0	6,594	17,940	5,300	3,611	16,522	3,104	3,644	16,795	365			
Loddon	2,870	11,658	0	1,477	7,235	0	1,579	13,086	0	3,054	15,815	0	2,636	13,703	0	3,644	16,795	0			
Wimmera	19,875	18,271	0	0	5,000	0	0	10,843	0	3,108	16,639	13	5,838	9,825	0	1,562	10,799	0			
Lower Murray (SA, NSW, VIC)	626,096	86,515	180,555	821,589	58,932	146,087	650,649	143,879	552,614	909,800	92,700	84,479	561,762	51,958	96,739		20,322	5,682			
Southern Basin total	1,119,329	273,167	326,036	1,615,37	166,308	370,015	1,454,68	379,762	834,408	1,829,32	225,236	261,292	1,017,75	267,049	228,680	1,046,47	229,517	80,312			
MDB total	1,210,887	304,284	373,676	1,658,20	171,010	411,158	1,826,09	437,350	929,761	1,945,73	278,469	351,596	1,158,22	309,483	331,752	1,079,60	232,067	85,912			
Net total use (CEWO)*	1,014,000			1,049,00			1,453,00			1,270,00			853,000			1,198,00			1,376,00		
Grand total all sources	1,888,847			2,240,37			3,193,20			2,575,80			1,799,46			1,397,58					
Grand total with CEWO net total	1,691,960			1,631,16			2,820,11			1,900,06			1,494,23			1,515,97			2,219,35		

Notes: 2012-13 CEWO data from CEWO (2013). 2013-14 CEWH data from CEWO (2015). 2013-14 State & Others data for NSW valleys and NSW Lower Murray Sites from OEH (2014) pp. 6, 10, 14, 18, 23. 2014-15 CEWO data from LTIM reports: Gawne et al. (2016) Appendix A. 2015-16 CEWO data from Gawne et al. (2017) Appendix A. 2016-17 CEWO data from Hale et al. (2018) Appendix A. 2017-18 CEWO data from Hale et al. (2019) Appendix A. 2018-19 CEWO data from Hale et al. (2020) Appendix A. 2012-13 CEWO freshening flows of 300,000 ML for Murray split 50:50 between Central and Lower Murray (CEWO, 2013, Appendix C). 2015-16 CEWO freshening flows of 7,640 ML from Mungindi to Menindee split 50:50 between Barwon-Darling and Lower Darling (Gawne et al. 2017, Appendix A). 2017-18 NSW data from OEH (2018). Hale et al. (2018) state CEWO delivered 142,444 ML to the Goulburn in 2016-17, but VEWH (2017) report 182,253 ML. Some 28,600 ML was released in the Gwydir Catchment (10,600 from CEWO, 18,000 from NSW) of which 15,350 ML reached the Barwon, so split accordingly (OEH, 2020). Hale et al. (2020) state CEWO delivered 45,722 ML to the Macquarie in 2018-19 but OEH (2020) reported 52,071 ML. *Figures on 'water delivered' by CEWO 2012-13 to 2018-19, reported by DAWE (n.d.), represent net total use and are lower than those reported as the CEWO total in LTIM reports (by an average of 26%; range 16-37%) because the former represents the volume of environmental water actually released, whereas the LTIM figures include return flows from River Murray tributaries that are available for re-use after they enter the Murray

Sources of data used to compile Table S1

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