7 Asset

7.1 A8—Water main breaks (no. per 100 km of water main)

7.1.1 Introduction

This indicator reports the total number of breaks, bursts, and leaks in all distribution system mains (including both potable and non-potable water mains), but excludes breaks associated with headworks and transfer mains. It provides a partial indication of the customer service provided and the condition of the network.

The number of main breaks is influenced by various factors, including soil type, rainfall, and pipe material, as well as the age and condition of the network.

Water main breaks per 100 km of water main, for all utilities reporting against this indicator in 2015–16, can be found in Table A16 in Appendix A.

7.1.2 Key findings

A summary of the reported water main breaks per 100 km of water mains, by utility size group, is presented in Table 7.1. Figure 7.1 is a box-and-whisker plot of water main breaks data for all utilities reporting A8 for a given reporting year from 2006–07 to 2015–16.

There is a large range of water main breaks per 100 km with GWMWater experiencing 55.5 breaks per 100 km of water mains (highest no. of breaks) down to MidCoast Water with only 1.7 breaks per 100 km of water mains. The national median was 12.8 water main breaks per 100 km of water mains in 2015–16, down slightly from 2014–15 (13 breaks per 100 km of water mains).

Table 7.1 A8—Overview of results: Water main breaks (no. per 100 km of water main)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	48.5	3.7	8	5	26	25.7	–1
	Yarra Valley Water	Unitywater					
50,000–100,000	31.6	12.4	3	6	21.1	18.8	–11
	Townsville	Cairns					
20,000–50,000	55.5	1.7	10	11	9.2	8.7	–5
	GWMWater	MidCoast Water					
10,000–20,000	40.9	3.2	11	16	12.4	12	–3
	South Gippsland Water	Livingstone					
All size groups (national)	55.5	1.7	32	38	13	12.8	–2
	GWMWater	MidCoast Water					

Table note

The median for water main breaks per 100 km of water main was calculated using data from all utilities (dual and single service providers) that reported data against A8 in both 2014–15 and 2015–16.

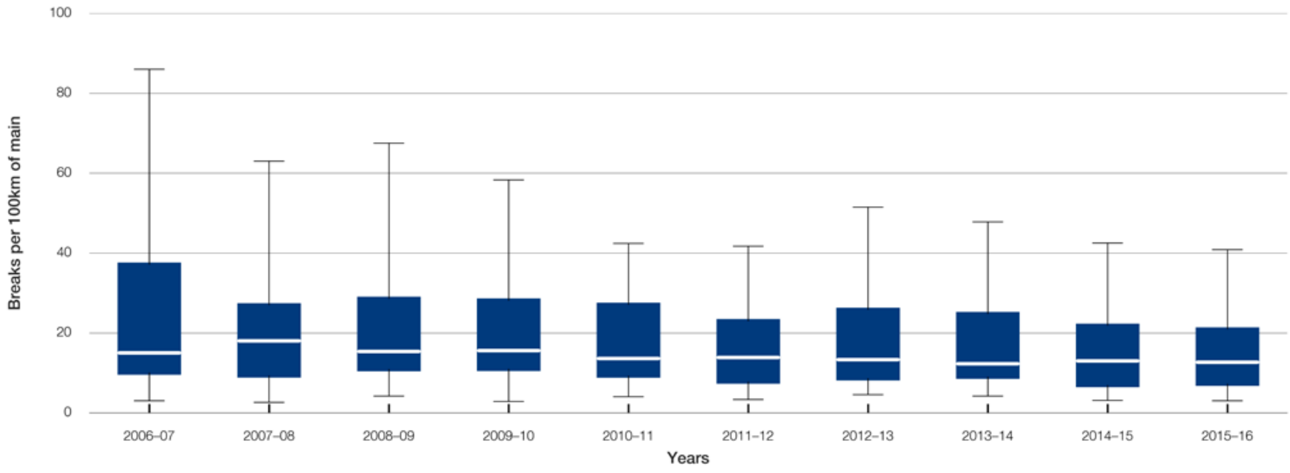

Figure 7.1 A8—Summary of results: Water main breaks (no. per 100 km of water main), 2006–07 to 2015–16

7.1.3 Results and analysis–100,000+ size group

A ranked breakdown of the water main breaks per 100 km of water main for each utility in this size group from 2010–11 to 2015–16 is presented in Figure 7.2.

In 2015–16, the median water main breaks per 100 km of water main remained almost consistent with 2014–15, decreasing by only 1 per cent. Logan City Council and Water Corporation—Perth reported the largest decrease with 28 per cent and 20 per cent respectively (Table A16 in Appendix A).

The Victorian utilities all saw increases in water main breaks. Yarra Valley Water (23 per cent) and Barwon Water (16 per cent) reported the largest increases across all utilities with Yarra Valley Water recording the highest at 48.5 breaks per 100 km of water mains. This result follows a change in climate experienced by these utilities in the 2014–15 period of dry, hot conditions and below-average rainfall (Figures 1.2 and 1.3).

7.2 A14—Sewerage mains breaks and chokes (no. per 100 km of sewer main) and A15—Property connection sewer breaks and chokes (no. per 1,000 properties)

7.2.1 Introduction

Indicator A14 reports the number of breaks and chokes per 100 km of sewerage main while A15 reports the number of property-connection sewerage breaks and chokes per 1,000 properties. The indicators are presented together to provide a complete picture of sewer-system performance, which is important because water utilities have sewer networks with various configurations. For example, some have a very long property connection (from the customer's sanitary drain to the middle of a road), while others have a very short or no property connection (i.e. the sanitary drain may connect straight to the sewer main, which runs down an easement at the back of the property).

Some utilities do not own[1] or maintain the property connections and therefore do not report on them (in accordance with the definition of the indicator). Other utilities are responsible for only a portion of property sewer connections and so only report results on those for which they are responsible.

The performance of a sewerage system is influenced by such factors as soil type, pipe material, and sewerage configuration, as well as age, tree root intrusion, the management of trade waste, the volume of sewage inflows, and rainfall. The results are a partial indicator of the condition of the network and level of customer service. It should be noted, for the above reasons, care should be taken in comparing the performance of utilities against each other using these indicators.

1 For such utilities, the property owner is responsible for the property's sewer connections.

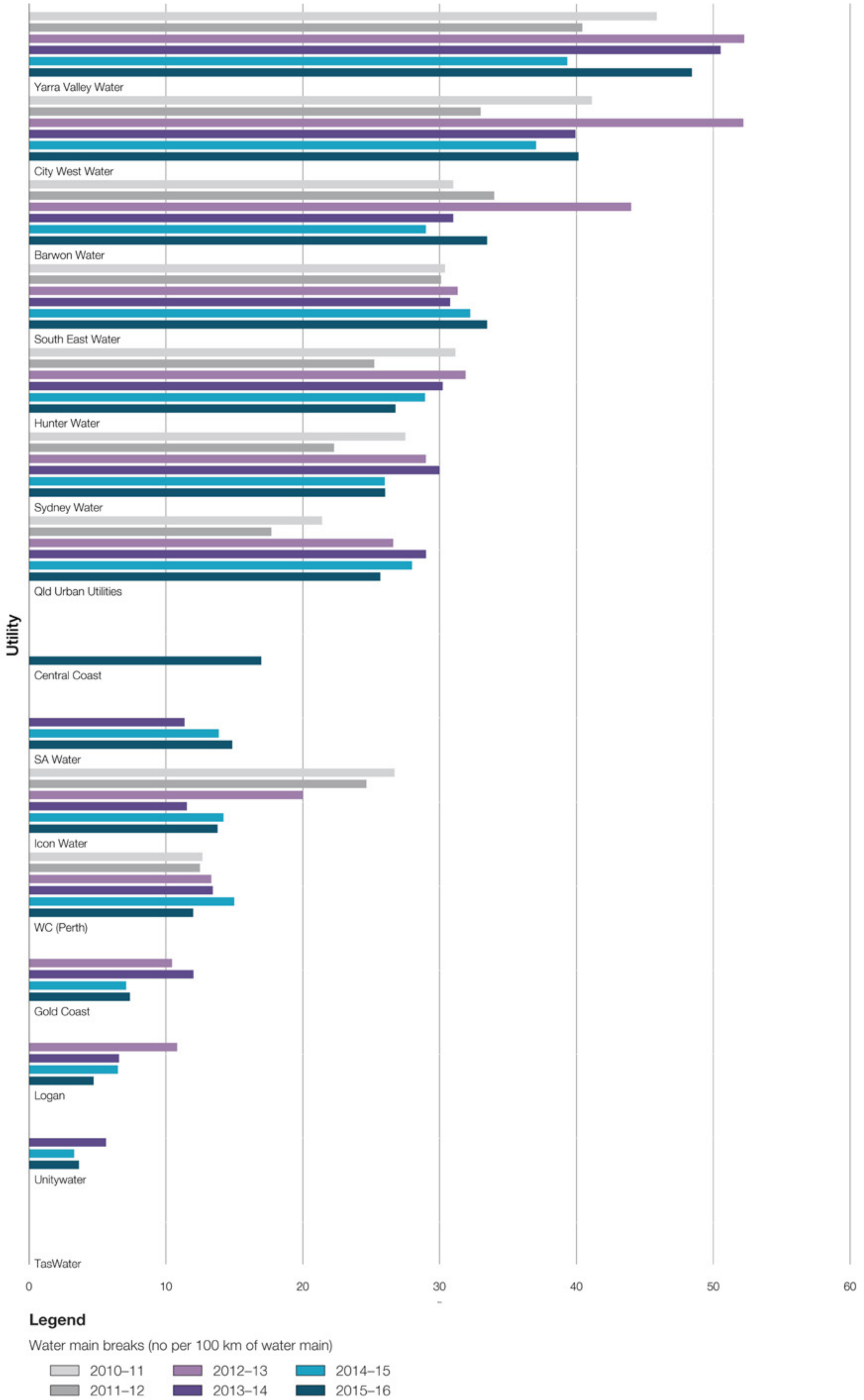

Figure 7.2 A8—Water main breaks (no. per 100 km of water main), for utilities with 100,000+ connected properties, 2010–11 to 2015–16

Sewerage mains breaks and chokes for all utilities reporting against A14 in 2015–16 can be found in Appendix A.

Property connection sewer breaks and chokes for all utilities reporting A15 in 2015–16 can be found in Table A19 in Appendix A.

7.2.2 Key findings

A summary of the sewerage mains breaks and chokes, by utility size group, is presented in Table 7.2.

A summary of the property connection sewer breaks and chokes, by utility size group, is presented in Table 7.3.

In 2015–16 there was a 27 per cent increase in the national median from 2014–15, equating to 18.2 sewerage main breaks and chokes per 100 km of sewer mains (Table 7.2). There was only a slight increase in the property connection sewer breaks and chokes per 1,000 properties (Table 7.3). Three of the four size groups reported increases in sewerage mains breaks and chokes while only one of the four size groups reported an increase in property connection sewer breaks and chokes.

Table 7.2 A14—Overview of results: Sewerage mains breaks and chokes (no. per 100 km of sewer main)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	58.4	7.2	8	5	30.1	25.2	–16
	Sydney Water	Gold Coast					
50,000–100,000	64.8	3.9	6	3	10.1	14.1	40
	Toowoomba	Townsville					
20,000–50,000	97	1	14	4	9.1	11.4	25
	Coffs Harbour	Tweed					
10,000–20,000	162	1.3	15	9	12.8	16.4	28
	Bathurst	Cassowary Coast					
All size groups (national)	162	1	43	21	14.3	18.2	27
	Bathurst	Tweed					

Table note

The median sewerage main breaks (per 100 km of sewer main) is calculated using data from all utilities (dual and single service providers) that reported data against A14 in both 2014–15 and 2015–16.

Table 7.3 A15—Overview of results: Property connection sewer breaks and chokes (no. per 1,000 properties)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	32	0.2	6	5	4.2	4.2	0
	SA Water	Sydney Water					
50,000–100,000	5.6	0.6	5	3	3.1	3.7	19
	Western Water	Toowoomba					
20,000–50,000	31.4	0.1	8	7	1.7	1.5	–12
	GWMWater	Shoalhaven					
10,000–20,000	44	0	10	9	4.5	3.1	–31
	Essential Energy	City of Kal-Boulder					
All size groups (national)	44	0	29	24	2.7	3.1	15
	Essential Energy	City of Kal-Boulder					

Table note

The median connected-property sewer breaks and chokes (per 1,000 properties) is calculated using data from all utilities (dual and single service providers) that reported data against A15 in both 2014–15 and 2015–16.

7.2.3 Results and analysis—100,000+ size group

A ranked breakdown of the sewerage mains breaks and chokes per annum for each utility from 2010–11 to 2015–16 is presented in Figure 7.3.

A ranked breakdown of the connected-property sewer breaks and chokes per annum for each utility from 2010–11 to 2015–16 is presented in Figure 7.4.

Hunter Water Corporation, Queensland Urban Utilities, and Unitywater all reported a decrease in sewerage mains breaks and chokes per 100 km sewer main (Table A14 in Appendix A) and breaks and chokes per 1,000 properties (Table A15 in Appendix A) from 2014–15. This is consistent with these utilities experiencing consistent above-average temperatures and average rainfall in 2014–15 and 2015–16. This consistency can result in less ground movement and fewer sewerage main breaks (section 1.4—Key drivers).

Gold Coast City Council reported an 85 per cent increase in breaks and chokes per 100 km of sewer main (Table A14 in Appendix A) compared with 2014–15. This is consistent with a change in rain patterns from above average in 2014–15 to below average in 2015–16. Temperatures also remained very much above average in 2015–16, resulting in dry soil conditions which can contribute to an increase in breaks and chokes (section 1.4–Key drivers).

Increases in sewerage mains breaks and chokes per 100 km sewer main (Table A14 in Appendix A) and breaks and chokes per 1,000 properties (Table A15 in Appendix A) from 2014–15 were reported for all the Victorian utilities. This is consistent with the dry, hot climate conditions experienced by these utilities in the 2015–16 period (temperatures were the highest on record) and below-average rainfall (Figures 1.2 and 1.3).

SA Water Corporation has consistently reported the highest level of sewer breaks and chokes for the previous three reporting years with 30 (2013–14), 29 (2014–15), and 32 (2015–16) per 1,000 connections (Table A19 in Appendix A). The majority of SA Water Corporation's blockages occur in the Adelaide foothills and are attributed to tree root intrusion. There are generally influenced by: vitrified clay pipes which were historically used; pipe depth; a high number of trees lining the streets where pipes are laid; and seasonal factors, such as rainfall and soil moisture.

7.3 A10—Real losses (L/service connection/day)

7.3.1 Introduction

'Real' losses are leakages and overflows from potable water mains, service reservoirs, and service connections before the customer meter. This indicator does not include metering errors and unauthorised consumption (which are referred to as 'apparent' losses). It also excludes unbilled authorised consumption, which may include water used for fire-fighting. Performance on this indicator can be influenced by the condition of mains and other infrastructure and also by water pressure.

Real losses are estimated using a range of assumptions, including assumed errors in metered water deliveries, estimates of unmetered components, and metering of night flows. Therefore, the real losses reported are not likely to be as accurate as for some of the other indicators (e.g. water main breaks), and that should be considered when comparing utilities.

Real losses for all utilities reporting against A10 in 2015–16 can be found in Table A17 in Appendix A.

7.3.2 Key findings

A summary of real losses, by utility size group, is presented in Table 7.4.

Figure 7.5 shows a box-and-whisker plot of real losses for all utilities reporting against A10 for a given reporting year from 2006–07 to 2015–16.

In 2015–16, the national median across all size groups remained consistent since 2011–12 at around 76 L/service connection/day (Table 7.4). Although most utilities reported values clustering around this median, several utilities had real loss values in the upper end of the dataset, extending the upper range of the distribution (Figure 7.5).

Cassowary Coast Regional Council reported the highest real losses among the utilities at 390 L/service connection/day, and Bundaberg Regional Council reported the highest increase since 2014–15 of 604 per cent (Table A17 in Appendix A).

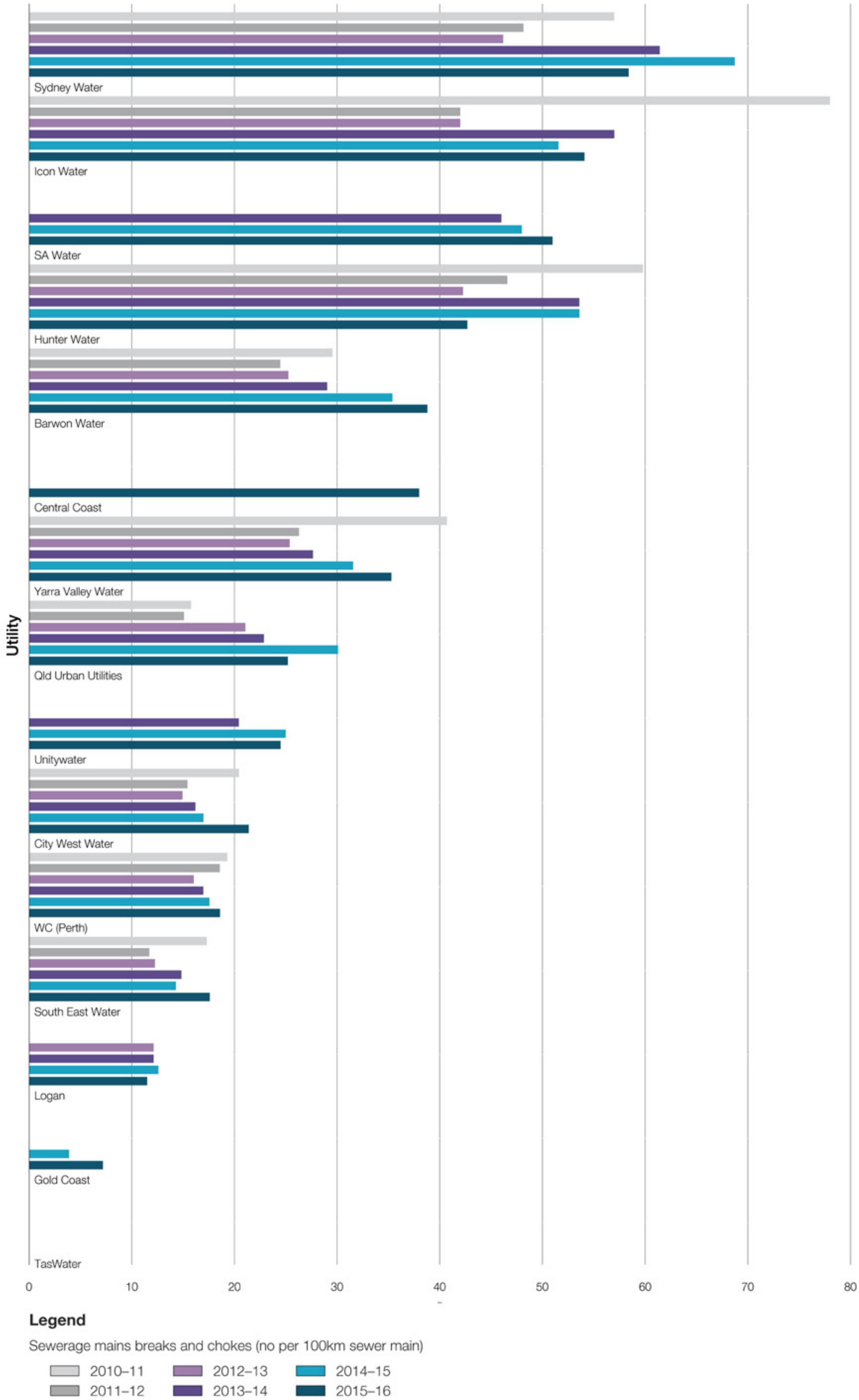

Figure 7.3 A14—Sewerage mains breaks and chokes (no. per 100 km of sewer main), for utilities with 100,000+ connected properties 2010–11 to 2015–16

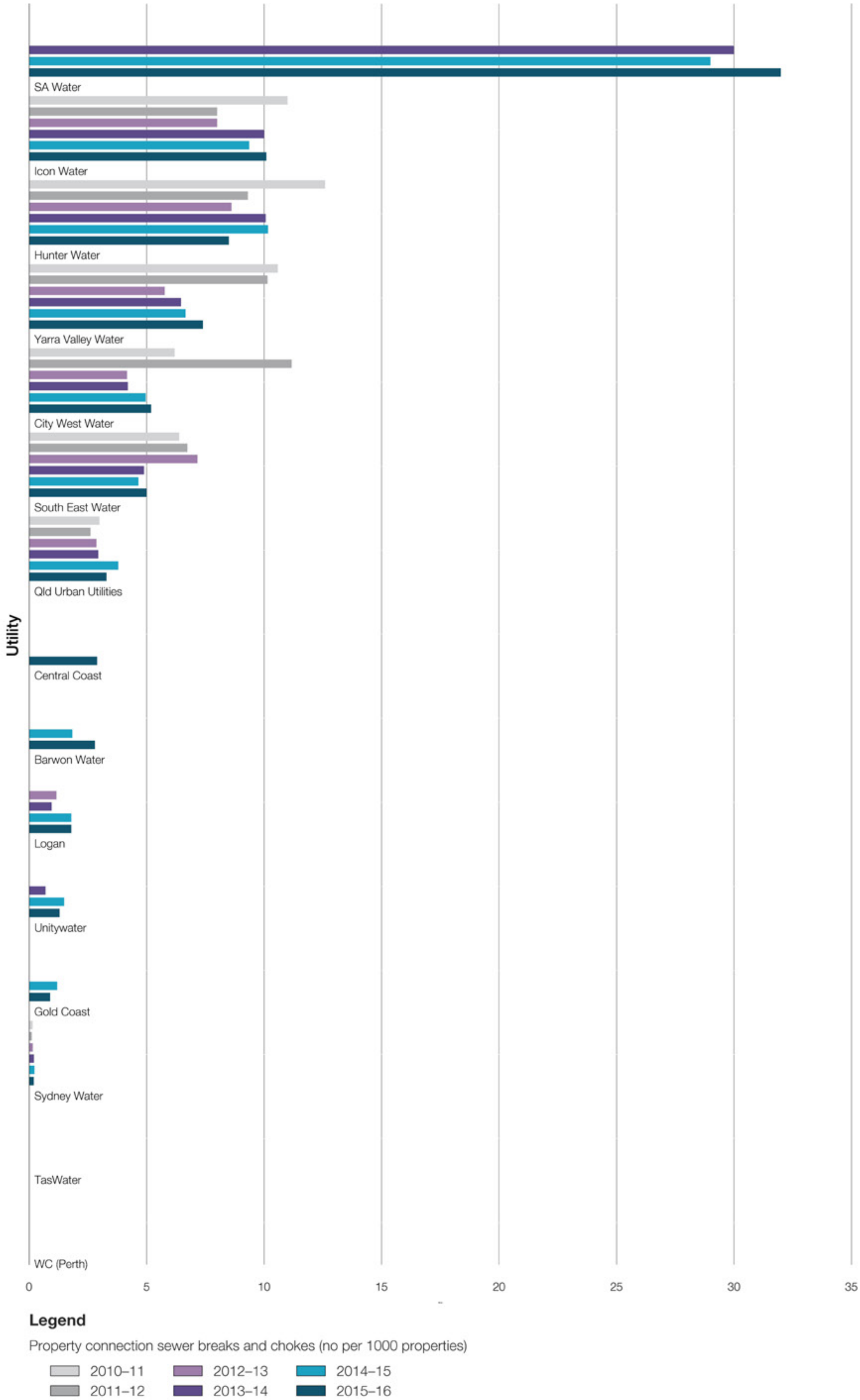

Figure 7.4 A15—Property-connection sewer breaks and chokes (no. per 1,000 properties), for utilities with 100,000+ connected properties, 2010–11 to 2015–16

Table 7.4 A10—Overview of results: Real losses (L/service connection/day)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	104	31	8	5	70	71	1
	Hunter Water	Central Coast					
50,000–100,000	276	27	3	4	71.5	73	2
	Townsville	Cairns					
20,000–50,000	354	17	9	9	70	74	6
	Bundaberg	Redland City					
10,000–20,000	390	0	9	11	100.2	95.5	–5
	Cassowary Coast	Livingstone					
All size groups (national)	390	0	29	29	77	76	–1
	Cassowary Coast	Livingstone					

Table note

The median real losses (L/service connection/day) are calculated using data from all utilities (dual and single service providers) that reported data against A10 in both 2014–15 and 2015–16.

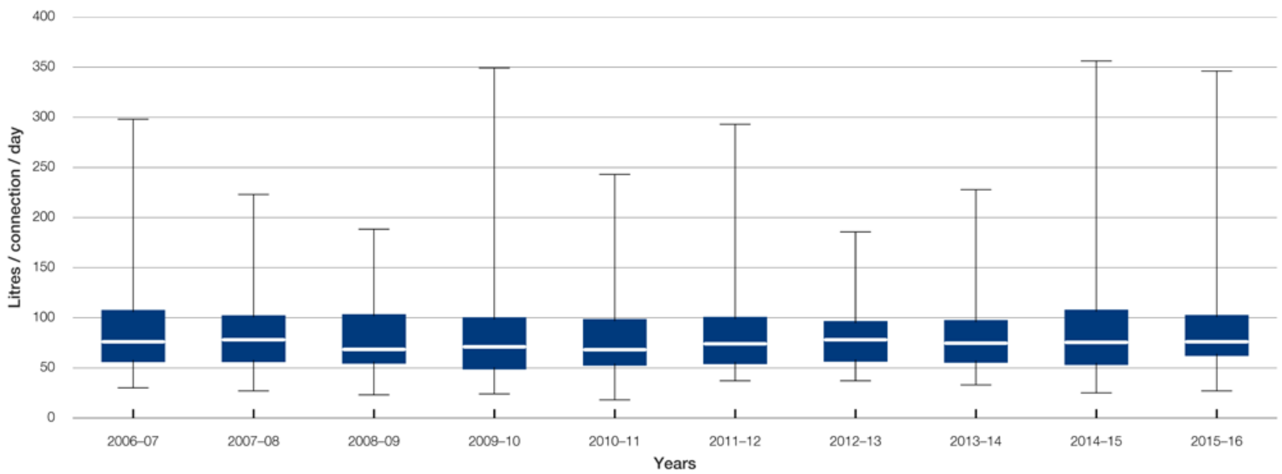

Figure 7.5 A10—Summary of results: Real losses (L/service connection/day), for utilities with 100,000+ connected properties, 2006–07 to 2015–16

7.3.3 Results and analysis—100,000+ size group

Figure 7.6 presents a ranked breakdown of the real losses per annum for each utility from 2010–11 to 2015–16.

Barwon Water reported an increase of 88 per cent since 2014–15 (Table A17 in Appendix A). This is consistent with the increase in water main breaks per 100 km of water main also reported in 2015–16 by the utility after reporting a decrease in water main breaks each year since 2013–14 (Table A16 in Appendix A). Logan City Council and SA Water Corporation reported decreases in real losses with 15 per cent and 9 per cent respectively from 2014–15 (Table A17 in Appendix A).

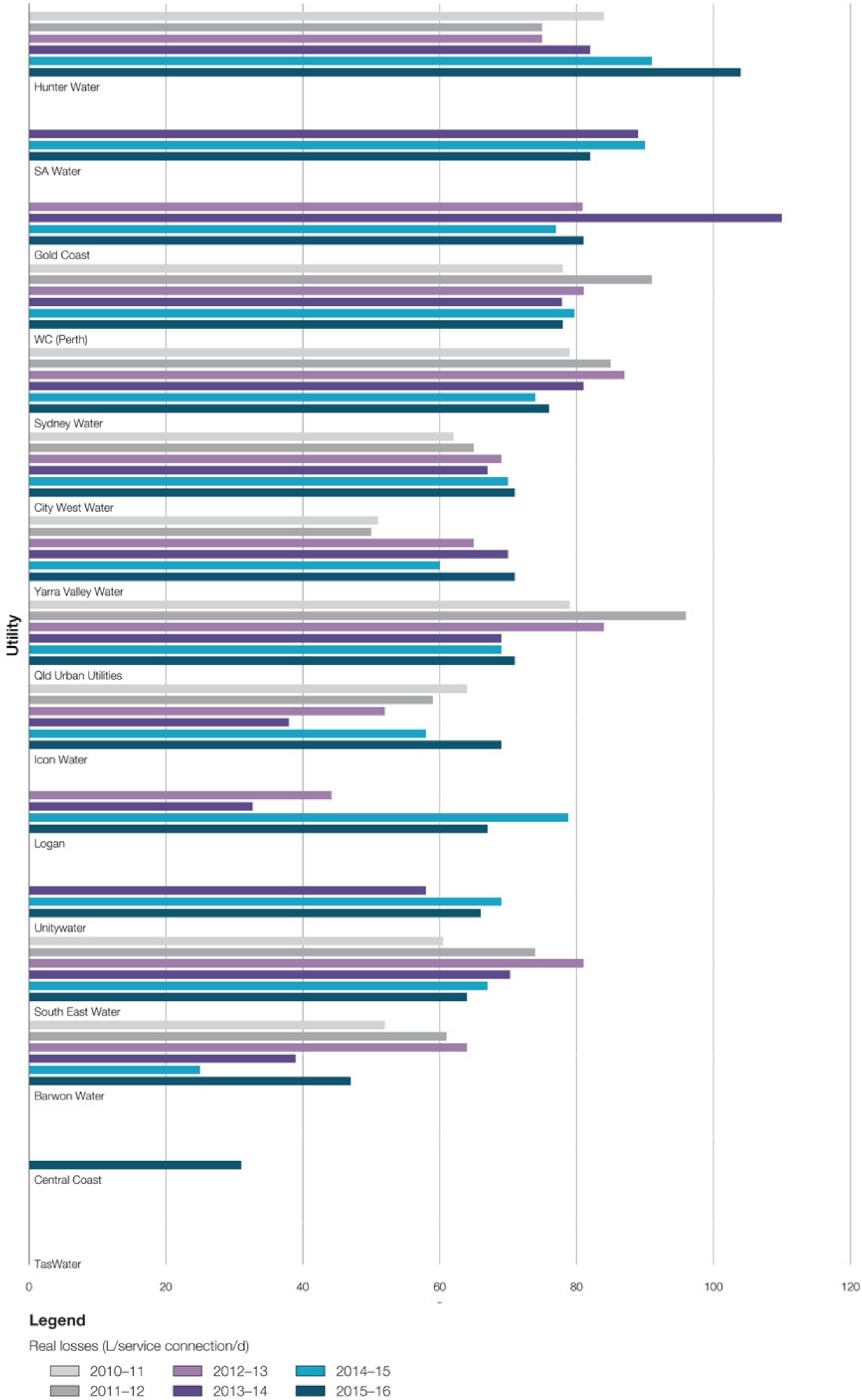

Figure 7.6 A10—Real losses (L/service connection/day), for utilities with 100,000+ connected properties, 2010–11 to 2015–16