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 nonpotable 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 2014–15, can be found in Table A16.

7.1.2 Key findings

A summary of the reported water main breaks per 100 km of water main, by utility 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 indicator A8 for a given reporting year from 2005–06 to 2014–15.

The median for the over 100,000 connected properties group in 2014–15 was 26 water main breaks per 100 km, higher than the national median for all groups (13 breaks per 100 km, see Table 7.1), in line with the observed historical trend of fewer breaks per 100 km reported by the smaller utilities (2013 Urban NPR, 2014 Urban NPR).

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

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2013–14		Median		Change in the median from 2013—14 %
	High	Low	Increase	Decrease	2013–14	2014–15	
100,000+	39.3	3.3	4	9	29	26	–10
	Yarra Valley Water	Unitywater					
50,000–100,000	28.6	12.2	3	8	22.2	20.7	–7
	Townsville Water	Western Water					
20,000–50,000	141	2.7	6	12	9.9	9.5	–4
	Gladstone	Coffs Harbour					
10,000–20,000	42.5	2.2	7	17	10.3	8.5	–17
	Central Highlands Regional Council	P&W (Alice Springs)					
All size groups (national)	**141**	**2.2**	**20**	**46**	**12.3**	**12.7**	**3**
	Gladstone	**P&W (Alice Springs)**					

Table note

Median 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 2013–14 and 2014–15.

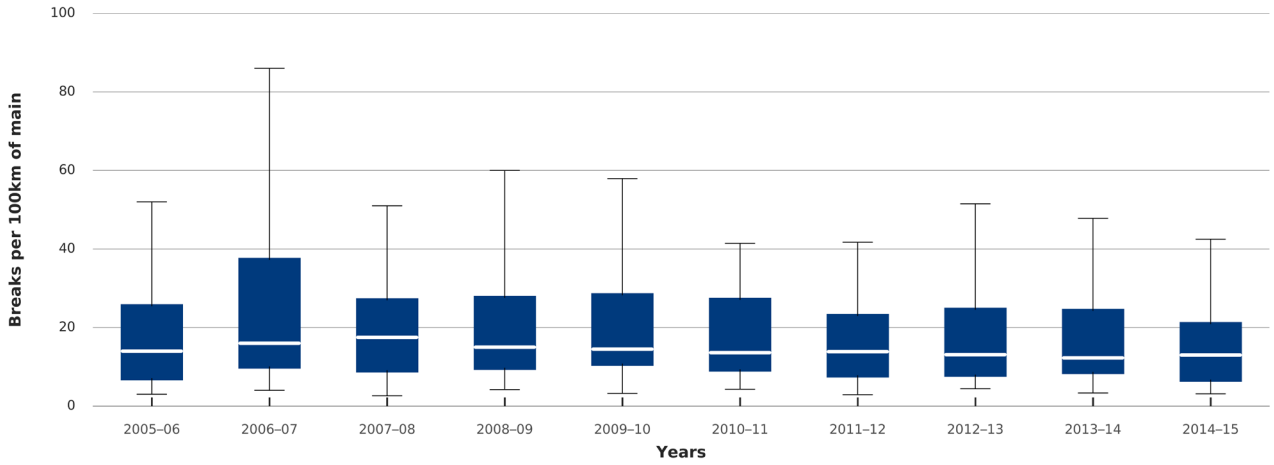

Figure 7.1 Summary of results: A8—Water main breaks (no. per 100 km of water main), 2005–06 to 2014–15

7.1.3 Results and analysis—100,000+ group

A ranked breakdown of the water main breaks per 100 km of water main for each utility in this group from 2009–10 to 2014–15 is presented in Figure 7.2.

In 2014–15, this group presented a 10 per cent decrease in the median water main breaks per 100 km of water main from 2013–14, with a decrease in main breaks reported by 9 of the group's 13 utilities (Table 7.1).

Significant reductions in water main breaks from 2013–14 were reported by Sydney Water Corporation (13 per cent), Yarra Valley Water (22 per cent), City of Gold Coast (41 per cent), and Unitywater (41 per cent). These utilities all experienced a change in climate conditions between 2013–14 and 2014–15, with Sydney Water Corporation, City of Gold Coast, and Unitywater experiencing greater rainfall and milder temperatures in 2014–15 (average to above-average rainfall deciles compared to lowest-on-record to below-average in 2013–14, and above-average temperature deciles compared to highest-on-record in 2013–14).

Three utilities reported an increase in the number of water main breaks per 100 km of water main from 2013–14: Icon Water (23 per cent), SA Water Corporation (22 per cent), and Water Corporation—Perth (12 per cent). The common trends in climate conditions for these utilities may have been a contributing factor, with each experiencing either no change or a drop in temperature, and lower rainfall in 2014–15 compared with that of 2013–14.

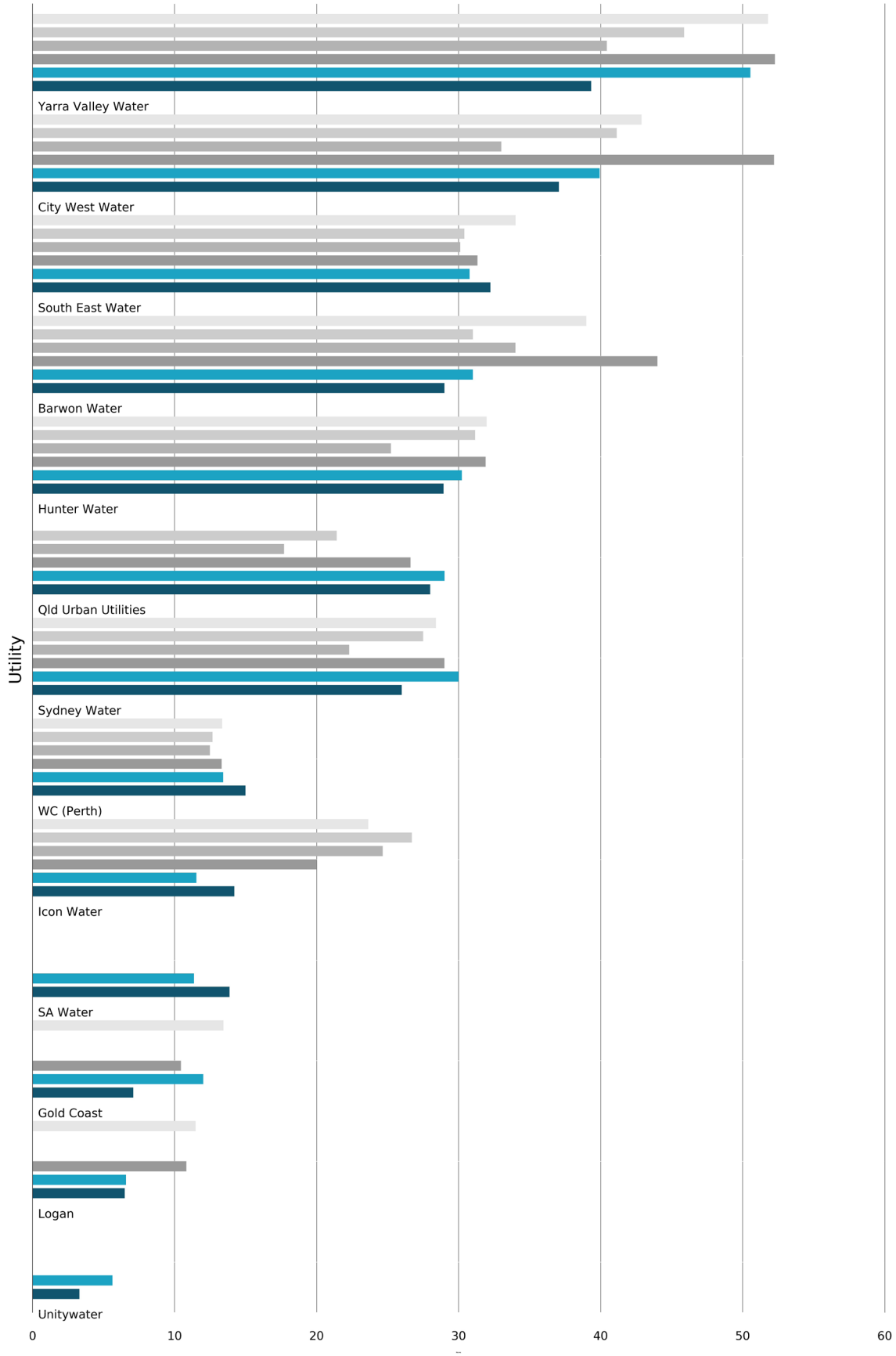

Figure 7.2 A8—Water main breaks (no. per 100 km of water main), 2009–10 to 2014–15, for utilities with 100,000+ connected properties

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 or maintain the property connections and therefore do not report 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.[2]

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.

Sewerage mains breaks and chokes for all utilities reporting against the A14 indicator in 2014–15 can be found in Table A18.

Property connection sewer breaks and chokes for all utilities reporting Indicator A15 in 2014–15 can be found in Table A19.

7.2.2 Key findings

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

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

In 2014–15, the 100,000+ group presented a 22 per cent increase in the median for sewerage main breaks and chokes per 100 km of sewer main (Table 7.2) and a 12 per cent decrease in the median for sewer breaks and chokes per 1,000 properties (Table 7.3) from 2013–14. Three of the four size groups reported increases in both sewerage mains breaks and chokes as well as property connection sewer breaks and chokes.

7.2.3 Results and analysis—100,000+ group

A ranked breakdown of the sewerage mains breaks and chokes per annum for each utility in this group from 2009–10 to 2014–15 is presented in Figure 7.3.

A ranked breakdown of the property connection sewer breaks and chokes per annum for each utility in the group from 2009–10 to 2014–15 is presented in Figure 7.4.

South East Water and Icon Water both reported a decrease in sewerage main breaks and chokes from 2013–14 (tables A18–A19). This is consistent with both utilities experiencing a decrease in rainfall from 2013–14.

Logan City Council reported an 80 per cent increase in breaks and chokes per 1,000 properties (A15), from 2013–14. This is consistent with above-average rainfall in 2014–15.

Unity Water reported an increase in sewerage main breaks and chokes per 100 km sewer main (A14) and breaks and chokes per 1,000 properties (A15) per 1,000 properties from 2013–14, consistent with the significant increase in rainfall in the region.

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

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

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2013–14		Median		Change in the median from 2013—14 %
	High	Low	Increase	Decrease	2013–14	2014–15	
100,000+	68.7	3.9	10	2	25.3	30.8	22
	Sydney Water	Gold Coast					
50,000–100,000	49	2.8	3	8	18.8	15.5	–18
	Wyong Shire	Townsville Water					
20,000–50,000	89	0	8	7	12.1	13.4	11
	Coffs Harbour	Tweed Shire					
10,000–20,000	129	0.3	15	6	20.6	22.8	11
	Essential Energy	Whitsunday					
All size groups (national)	**129**	**0**	**36**	**23**	**19.7**	**20.8**	**6**
	Essential Energy	**Tweed Shire**					

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 2013–14 and 2014–15.

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

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2013–14		Median		Change in the median from 2013—14 %
	High	Low	Increase	Decrease	2013–14	2014–15	
100,000+	29	0.2	8	3	4.2	4.7	12
	SA Water	Sydney Water					
50,000–100,000	5	0	3	7	3.7	3.1	–16
	Western Water	Goulburn Valley Water					
20,000–50,000	25.1	0	6	7	1.9	2.4	26
	GWMWater	Lower Murray Water					
10,000–20,000	41.3	0	9	8	4.3	5.1	19
	Essential Energy	Queanbeyan					
All size groups (national)	**41.3**	**0**	**26**	**25**	**3.7**	**3.4**	**–8**
	Essential Energy	**Multiple utilities**					

Table note

The median property-connection 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 2013–14 and 2014–15.

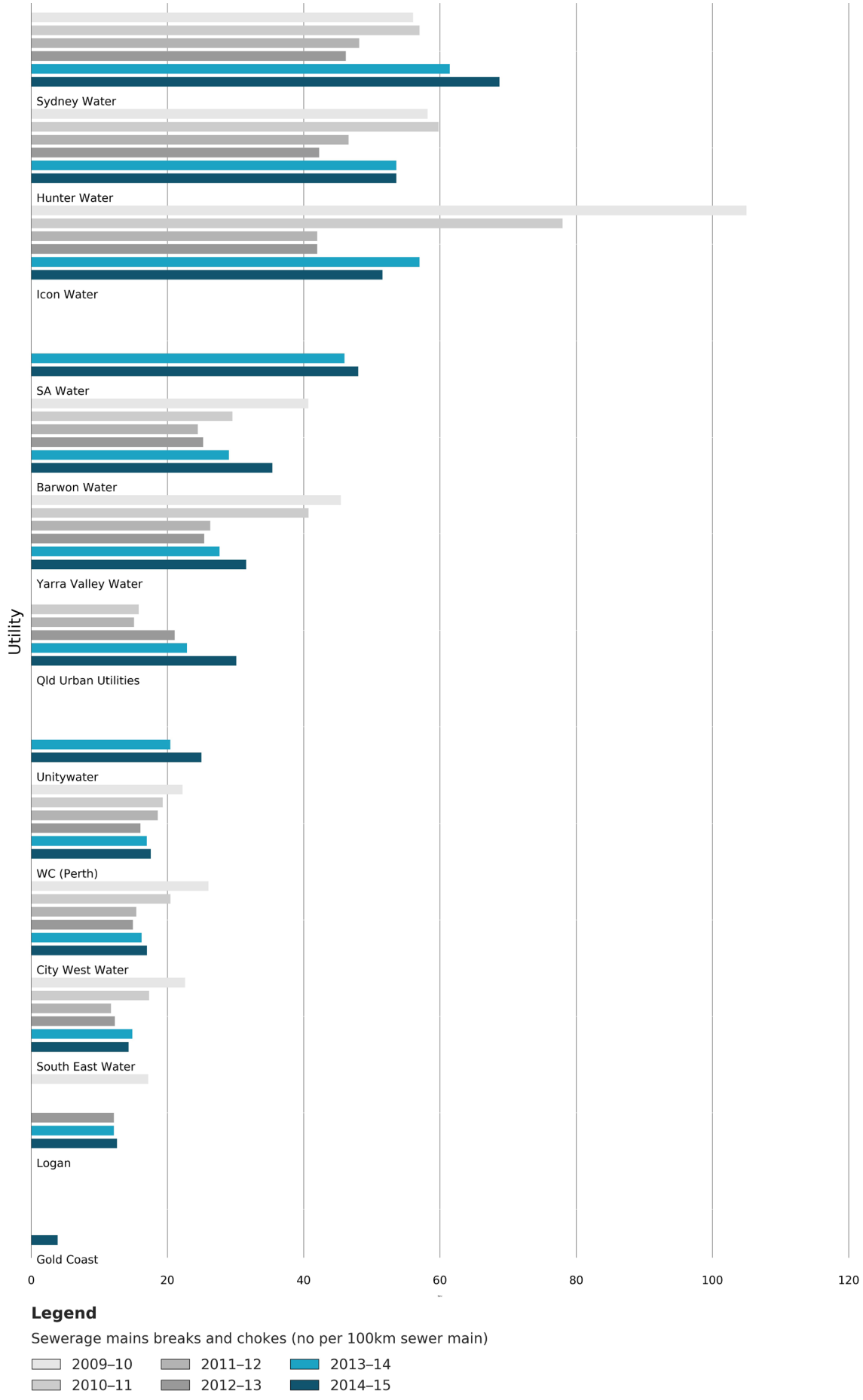

Figure 7.3 A14—Sewerage mains breaks and chokes (no. per 100 km of sewer main), 2009–10 to 2014–15, for utilities with 100,000+ connected properties

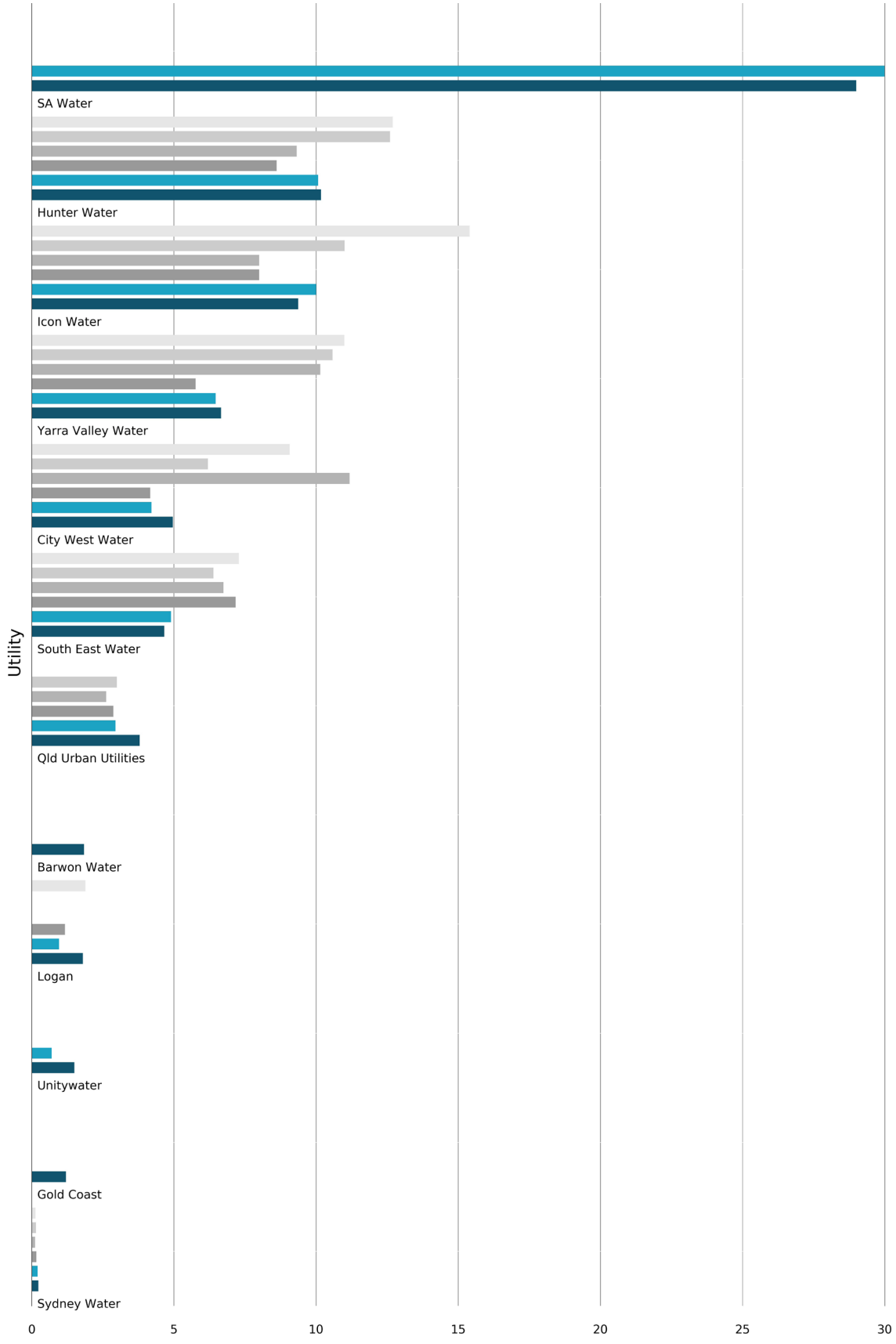

Figure 7.4 A15—Property connection sewer breaks and chokes (no. per 1,000 properties), 2009–10 to 2014–15, for utilities with 100,000+ connected properties

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 (for example, water main breaks), and that should be considered when comparing utilities.

Real losses for all utilities reporting Indicator A10 in 2014–15 can be found in Table A17.

7.3.2 Key findings

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

Figure 7.5 shows a 'box and whisker' plot of real losses for all utilities reporting A10 for a given reporting year from 2005–06 to 2014–15.

In 2014–15 there was a 5 per cent decrease in the national median across all groups (Table 7.4), with the national median remaining relatively steady since 2012–13 (Figure 7.5).

Hunter Water Corporation continued to report the highest real losses in the major utilities group each year since 2011–12 (Table A17), although this does not correlate with water main breaks for that utility compared with others in its group (Table A16).

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

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2013–14		Median		Change in the median from 2013—14 %
	High	Low	Increase	Decrease	2013–14	2014–15	
100,000+	91	25	6	6	70	70	0
	Hunter Water	Barwon Water					
50,000–100,000	229	24	3	7	68	64.5	–5
	P&W (Darwin)	Cairns					
20,000–50,000	860.2	44.1	7	11	65.5	70	7
	Gladstone	Redland					
10,000–20,000	537.2	13	8	14	90	82	–9
	Whitsunday	Westernport Water					
All size groups (national)	**860.2**	**13**	**24**	**38**	**76.4**	**72.5**	**–5**
	Gladstone	**Westernport Water**					

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 2013–14 and 2014–15.

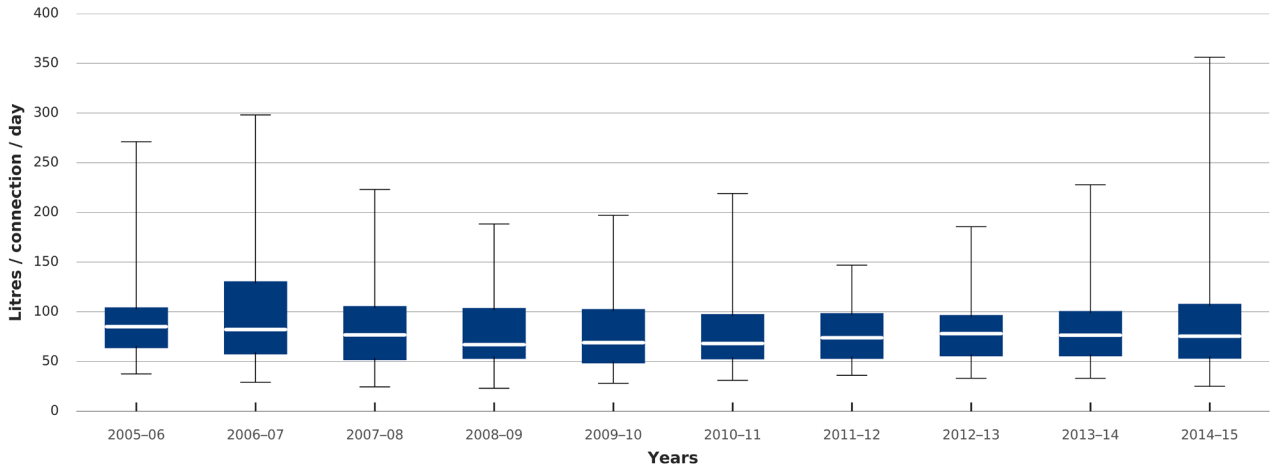

Figure 7.5 Summary of results: A10—Real losses (L/service connection/day), 2009–10 to 2014–15, for utilities with 100,000+ connected properties

7.3.3 Results and analysis—100,000+ group

Figure 7.6 presents a ranked breakdown of the real losses per annum for each utility in this group from 2009–10 to 2014–15.

Logan City Council reported a significant increase (141 per cent) from 2013–14 (Table A17). The utility identified excess pressure in the network as a contributor to leaks and, since 2008, it has divided the water network into smaller areas for leak detection and repair work. This work is still underway (Logan City Council 2015).

After reporting a decrease in losses each year since 2010–11, Icon Water reported an increase in 2014–15 (Table A17). This is consistent with the increase in water main breaks per 100 km of water main also reported in 2014–15 by the utility after reporting a decrease in water main breaks each year since 2010–11 (Table A16).

Yarra Valley Water, Gold Coast, and Barwon Water each reported significant reductions in real losses with 14 per cent, 30 per cent, and 36 per cent respectively from 2013–14 (Table A17).

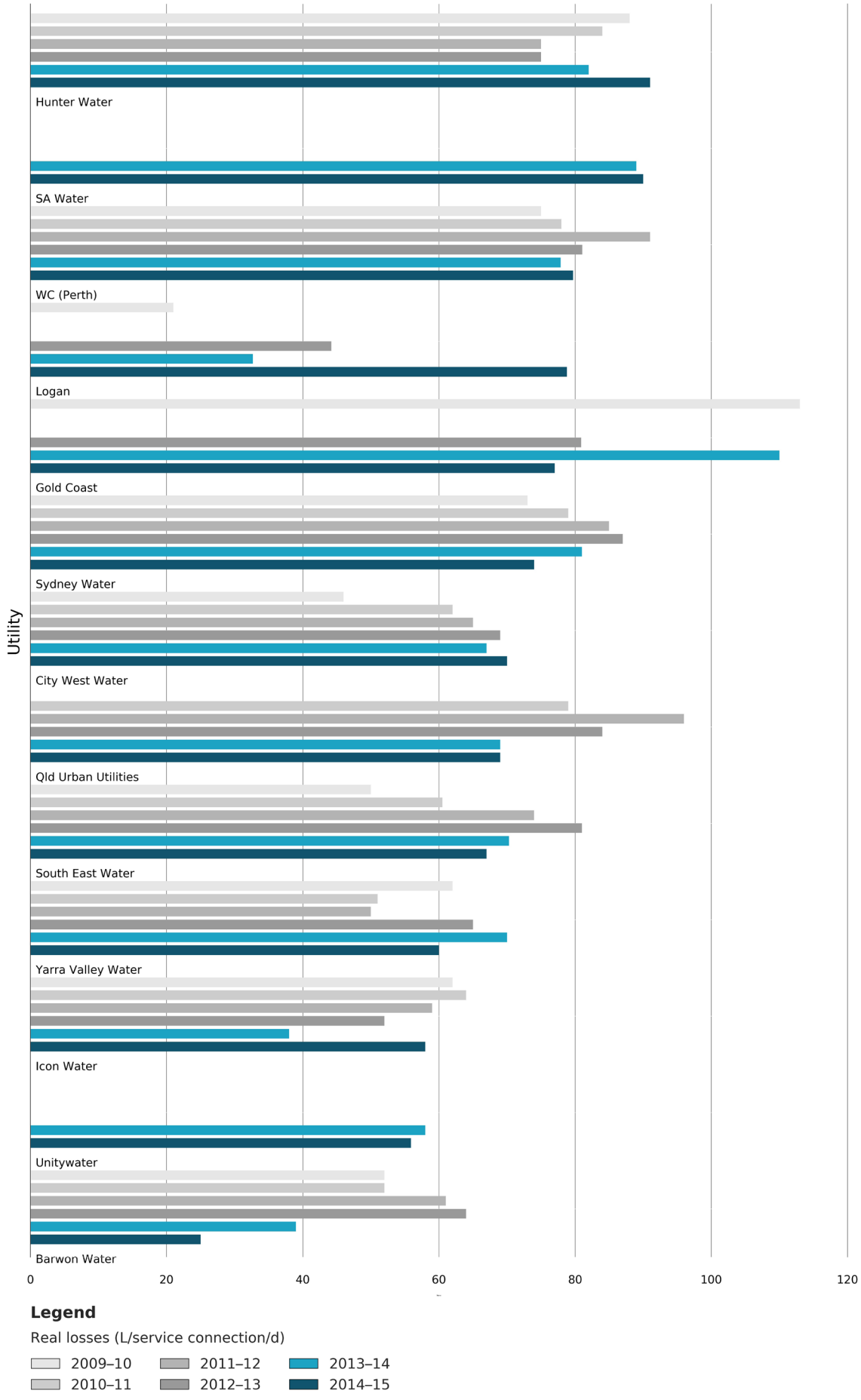

Figure 7.6 **A10—Real losses (L/service connection/day), 2009–10 to 2014–15 for utilities with 100,000+ connected properties.**