

7 Asset

7.1 Number of water main breaks, bursts and leaks per 100 km of water mains – A8

The number of water main breaks, bursts and leaks per 100 km of water mains (A8) is the total number of breaks, bursts and leaks in all distribution system mains⁷, excluding breaks associated with headworks and transfer mains. It provides an indication of both customer service and the condition of the network. The number of main breaks is influenced by various factors, including:

- soil type
- rainfall
- pipe material
- age and condition of the network.

Data on the number of water main breaks, bursts and leaks per 100 km of water mains for all utilities reporting in 2020–21 are presented in Table A13, Appendix A.

7.1.1 Key findings

Figure 7.1 shows a decrease in the national median number of main breaks in 2020–21, following 2 years of modest increases between 2018–19 and 2019–20.

Table 7.1 presents a summary of the number of water main breaks per 100 km of water main by utility size group.

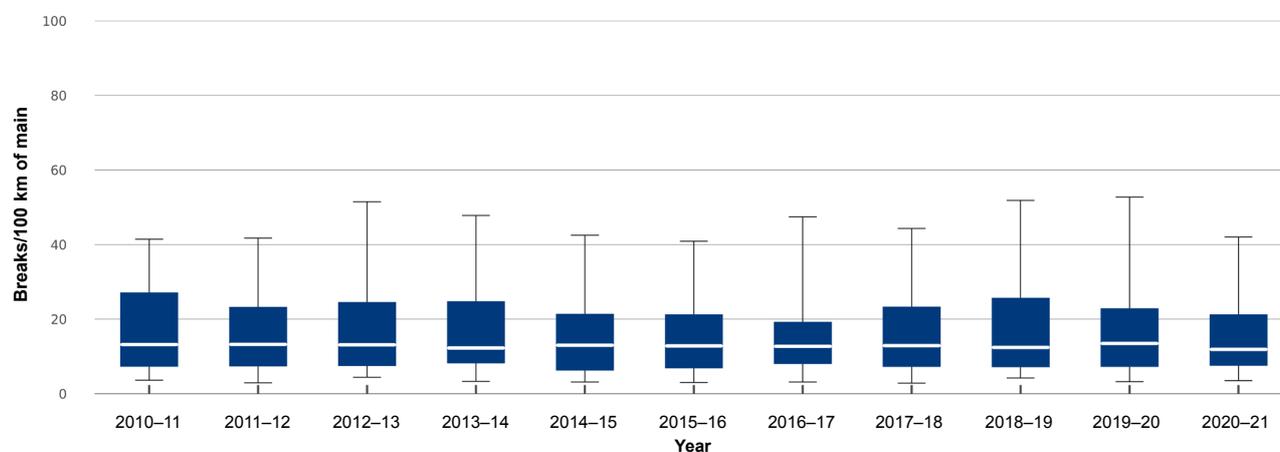


Figure 7.1 Number of water main breaks, bursts and leaks per 100 km of water mains

⁷ The figure includes both potable and non-potable water mains.

Table 7.1 Overview of results: Number of water main breaks, burst and leaks per 100 km of water mains (mains breaks/100 km)

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	51.9	3.5	1	14	25.1	20.2	-20
	TasWater	Unitywater					
Large	21.8	2.7	5	7	13.2	13.9	5
	Townsville	WC (Mandurah)					
Medium	42	4.3	11	11	12.3	11.3	-8
	Eurobodalla	Albury					
Small	48.2	3.5	13	12	11.5	10.8	-6
	Byron	Bathurst					
All utility groups (national)	51.9	2.7	30	44	13.5	12	-11
	TasWater	WC (Mandurah)					

Note: The median for water main breaks, burst and leaks per 100 km of water mains in each year was calculated using data from all utilities (dual-service and single-service providers) reporting data against A8 in that year.

7.1.2 Results and analysis – Major utility group

Figure 7.2 presents a ranked breakdown of the water main breaks for each utility in the Major utility group from 2016–17 to 2020–21. The figure highlights both the variance within the utility group and a broad downward trend for some utilities (for example, Central Coast Council and Yarra Valley Water Corporation).

All major utilities except TasWater reported a decrease in water main breaks, bursts and leaks from 2019–20 to 2020–21. For TasWater, the high number of breaks has been driven, in part, by delays in the delivery of water mains renewals at the start of 2020–21. A large number of assets are also nearing the end of their useful lives, leading to one-off dispersed failures. As it did in 2019–20, City West Water again reported the largest percentage decrease (41.8%).

7.2 Number of sewer mains breaks and chokes – A14 and property connection sewer breaks and chokes – A15 per 1,000 properties

Indicator A14 reports the number of sewer breaks and chokes per 100 km of sewer mains, and A15 reports the number of property connection sewer breaks and chokes per 1,000 properties. The indicators are presented together to provide a complete picture of sewer system performance as utilities have sewer networks with various configurations.

- Some utilities 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 (that is, 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 own⁸ 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.

⁸ For such utilities, the property owner is responsible for the property’s sewer connections.

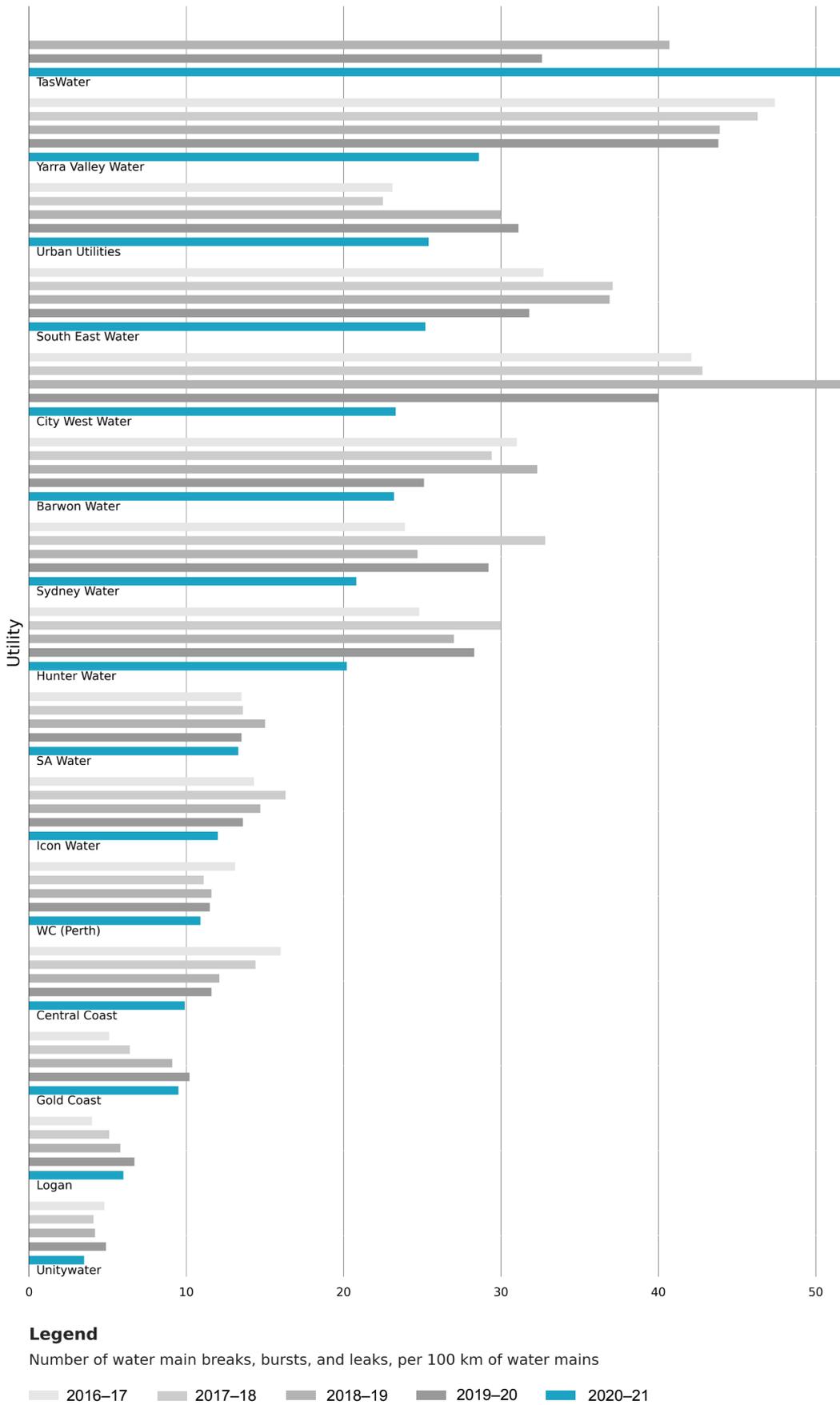


Figure 7.2 Water main breaks, bursts and leaks per 100 km of water mains – Major utility group

The performance of a sewerage system is influenced by:

- soil type
- pipe material
- sewerage configuration
- age
- tree root intrusion
- management of trade waste
- volume of sewage inflows
- rainfall.

Results reflect both the condition of the network and the level of customer service. For the reasons given above, care should be taken in comparing the performance of utilities against each other using these indicators.

Data on sewer mains breaks and chokes for all utilities reporting in 2020–21 are presented in Table A14, Appendix A. Property connection sewer breaks and chokes for all utilities reporting in 2020–21 are presented in A15, Appendix A.

7.2.1 Key findings

Table 7.2 presents a summary of the number of sewer mains breaks and chokes per 100 km of sewer main by utility group.

Table 7.3 presents a summary of the property connection sewer breaks and chokes per 1,000 properties by utility group.

In 2019–20, there was a national median of 15.8 sewer main breaks and chokes per 100 km of sewer main, which was a 12% decrease from 2019–20 (Table 7.2). There was a 3% increase in the sewer breaks and chokes per 1,000 properties (Table 7.3). The overall increase in sewer breaks and chokes was due to a 24% increase in property connection sewer breaks and chokes for the Small utility group; all other utility groups reported a decrease in the range of 6% to 24%.

Table 7.2 Overview of results: Number of sewer mains breaks and chokes per 100 km of sewer main (breaks and chokes/100 km)

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	56.6	3.8	4	11	33	30	-9
	TasWater	Gold Coast					
Large	54.4	1.5	4	8	13.5	13.9	3
	Townsville	Gippsland Water					
Medium	116	1	8	13	16	14	-13
	Queanbeyan	Tweed					
Small	277	3.4	15	9	13.7	15.6	14
	Goulburn Mulwaree	WC (Geraldton)					
All size groups (national)	277	1	31	41	18	15.8	-12
	Goulburn Mulwaree	Tweed					

Note: The median number of sewer mains breaks (per 100 km of sewer main) in each year is calculated using data from all utilities (dual-service and single-service providers) reporting data against A14 in that year.

Table 7.3 Overview of results: Number of property connection sewer breaks and chokes per 1,000 properties (breaks and chokes/1,000 properties)

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	28	0.2	2	12	4	3.5	-13
	SA Water	Sydney Water					
Large	7.2	0.5	4	7	2.9	2.2	-24
	Townsville	Coliban Water					
Medium	35.5	0.03	10	10	3.6	3.4	-6
	GWMWater	Port Macquarie Hastings					
Small	61.4	0	11	7	4.6	5.7	24
	Essential Energy	Kal–Boulder (S)					
All utility groups (national)	61.4	0	27	36	3.3	3.4	3
	Essential Energy	Kal–Boulder (S)					

Note: The median number of property connection sewer breaks and chokes per 1,000 properties in each year is calculated using data from all utilities (dual-service and single-service providers) reporting data against A15 in that year.

7.2.2 Results and analysis – Major utility group

Figure 7.3 shows a ranked breakdown of the sewer mains breaks and chokes (per 100 km of sewer main) for each Major utility from 2016–17 to 2020–21 and Figure 7.4 shows a ranked breakdown of property connection sewer breaks and chokes per 1,000 properties.

Only 4 of the 15 Major utilities reported an increase in sewer mains breaks and chokes per 100 km sewer main, and only 2 reported an increase in sewer breaks and chokes per 1,000 properties from 2019–20 to 2020–21. TasWater reported the largest percentage increase (37.4%) in breaks and chokes per 100 km of sewer main compared with 2019–20 (Figure 7.3). The overall decrease in sewer main breaks and chokes is consistent with the return to average to above-average rainfall for much of eastern Australia in 2020–21, leading to wetter soil conditions and a decreased risk of breaks and chokes.

7.3 Real losses: service connections – A10

'Real' losses (A10) are leakages and overflows from potable water mains, service reservoirs, and service connections before the customer meter (L/service connection/day). This indicator excludes metering errors, unauthorised consumption (apparent losses), and unbilled authorised consumption (for example, water used for firefighting). Performance of this indicator may be influenced by the condition of mains, infrastructure, and water pressure.

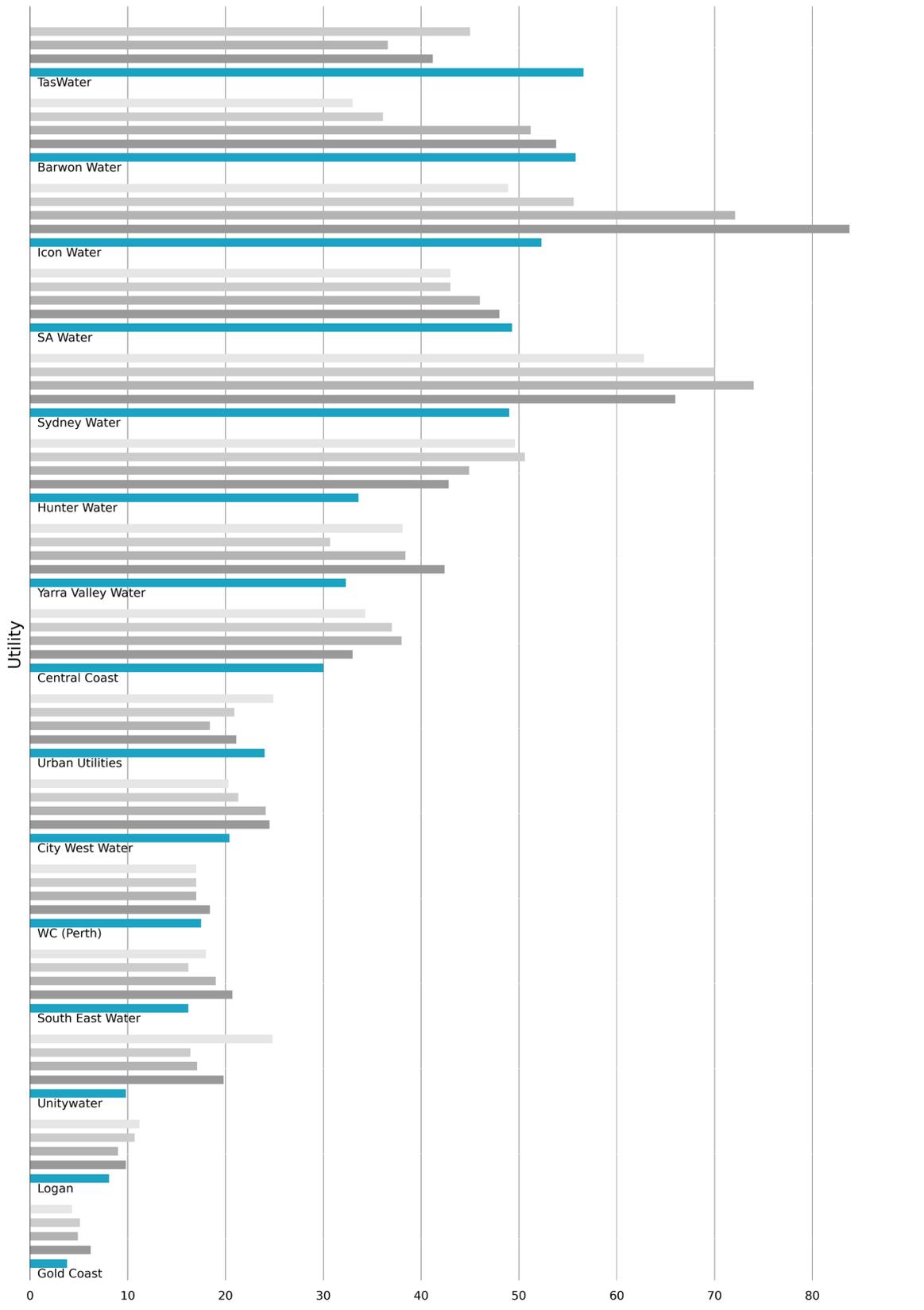
Real losses are estimated using a range of assumptions, including assumed errors in metered water deliveries, estimates of unmetered components, and metering of night flows, and may not be as accurate as other indicators (such as water main breaks) when comparing utilities.

Real loss data for all utilities reporting in 2020–21 are presented in Table A16, Appendix A.

7.3.1 Key findings

Table 7.4 presents a summary of the real losses by utility size group.

The national median across all size groups decreased by 4% from 2019–2020 to 2020–21, to 68 L/service connection/day.



Legend

Sewer mains breaks and chokes (no. per 100 km sewer main)

2016-17 2017-18 2018-19 2019-20 2020-21

Figure 7.3 Sewer mains breaks and chokes per 100 km of sewer main – Major utility group

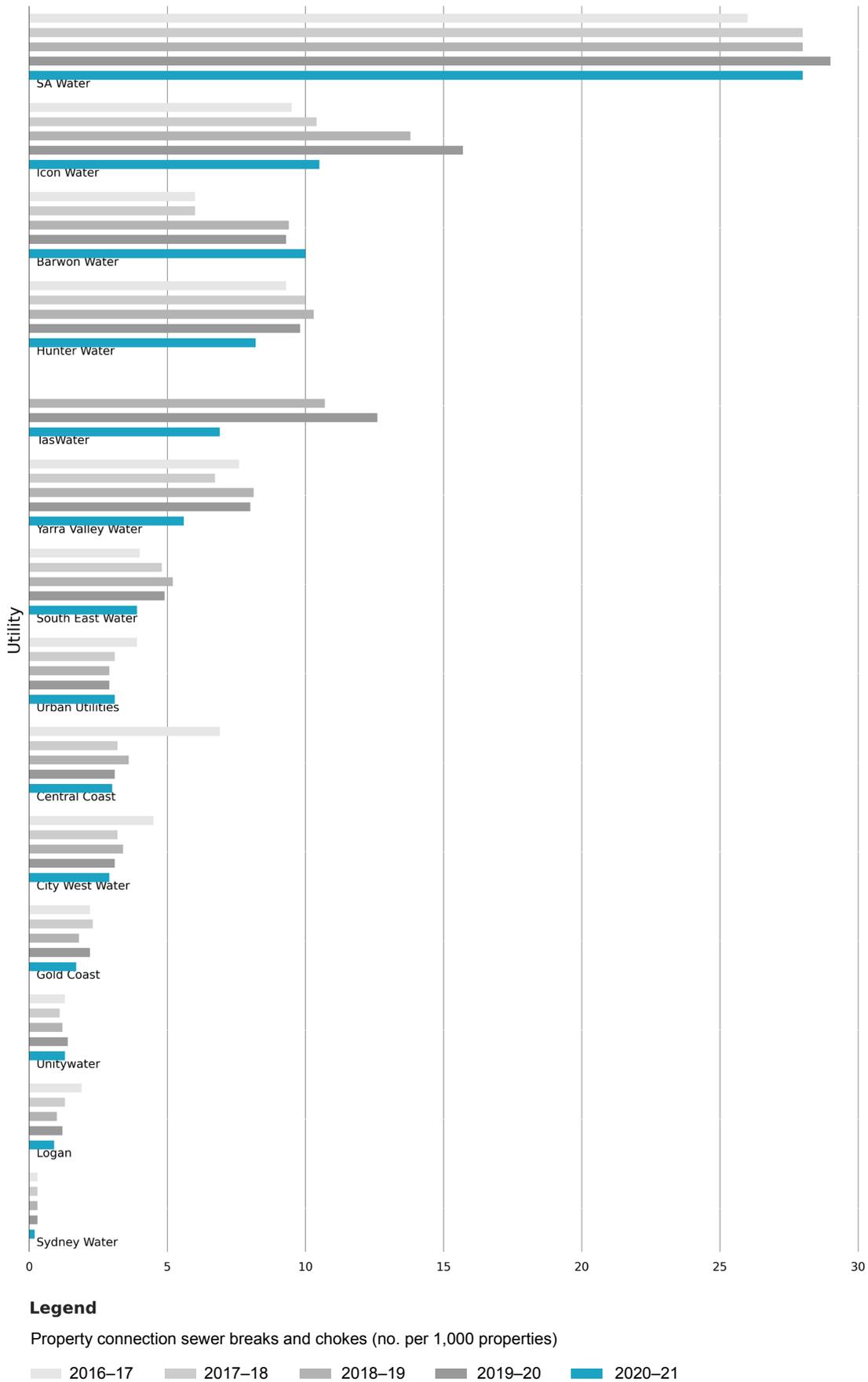


Figure 7.4 Property connection sewer breaks and chokes per 1,000 properties – Major utility group

As in 2019–20, Cassowary Coast Regional Council reported the highest real losses among the utilities (372.5 L/service connection/day in 2020–21); however, this was a 21.1% decrease from the previous year. Western Water reported the highest percentage increase in real losses since 2019–20; however, their 2020–21 result was well below their long-term average.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	272	24	4	11	68	64	-6
	TasWater	Barwon Water					
Large	297	18.4	6	7	71	52	-27
	P&W (Darwin)	Redland City					
Medium	228.1	0	9	11	73.5	61.6	-16
	Mackay	Lower Murray Water					
Small	372.5	11	9	14	88.2	106.5	21
	Cassowary Coast	Westernport Water					
All utility groups (national)	372.5	0	28	43	71	68	-4
	Cassowary Coast	Lower Murray Water					

Note: The median real losses (L/service connection/day) for each year are calculated using data from all utilities (dual-service and single-service providers) reporting data against A10 in that year.

Figure 7.5 shows a box-and-whisker plot of the real losses for all utilities reporting A10 for a given reporting year from 2010–11 to 2020–21. The figure highlights the consistency of the estimated loss values – this is in part an artefact of the broad use of consistent assumptions in the estimation of the losses.

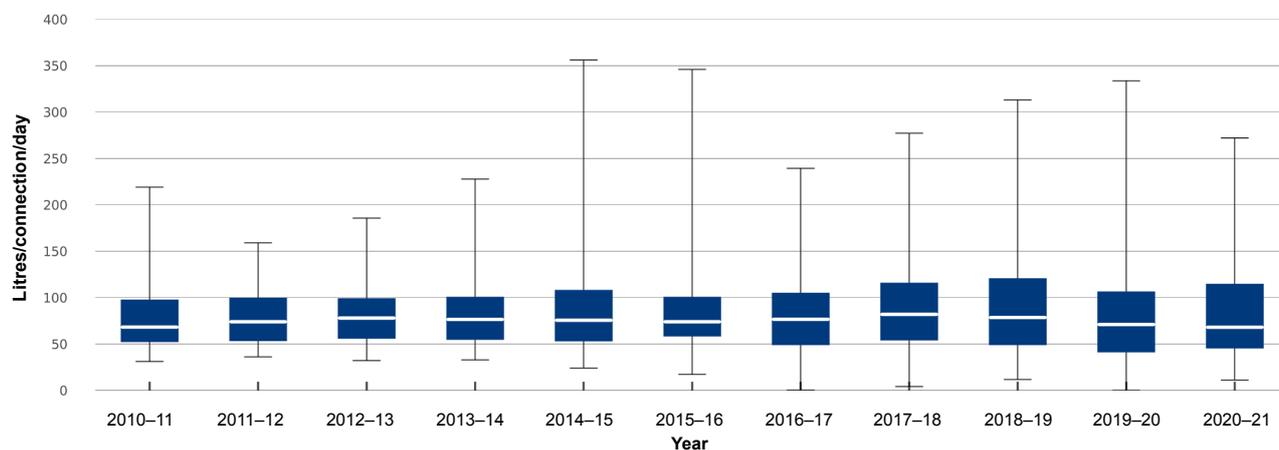


Figure 7.5 Real losses (L/service connection/day)

7.3.2 Results and analysis – Major utility group

Figure 7.6 presents a ranked breakdown of the real losses per annum for each Major utility from 2016–17 to 2020–21. Four utilities reported an increase in real losses between 2019–20 and 2020–21. City West Water reported the highest percentage increase (19.9%), from 39.2 L/service connection/day in 2019–20 to 47 L/service connection/day in 2020–21).

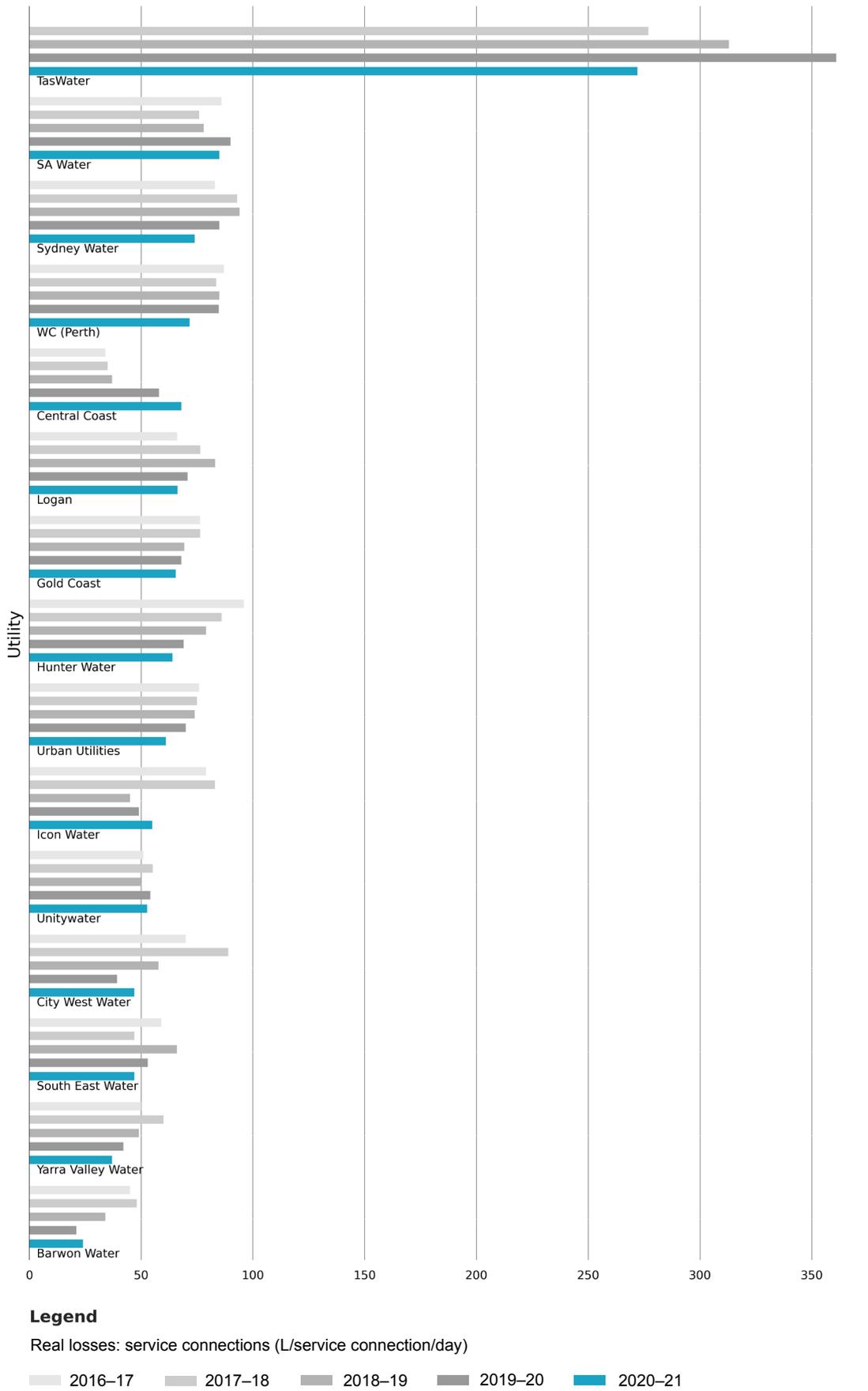


Figure 7.6 Real losses: service connections (L/service connection/day) – Major utility group