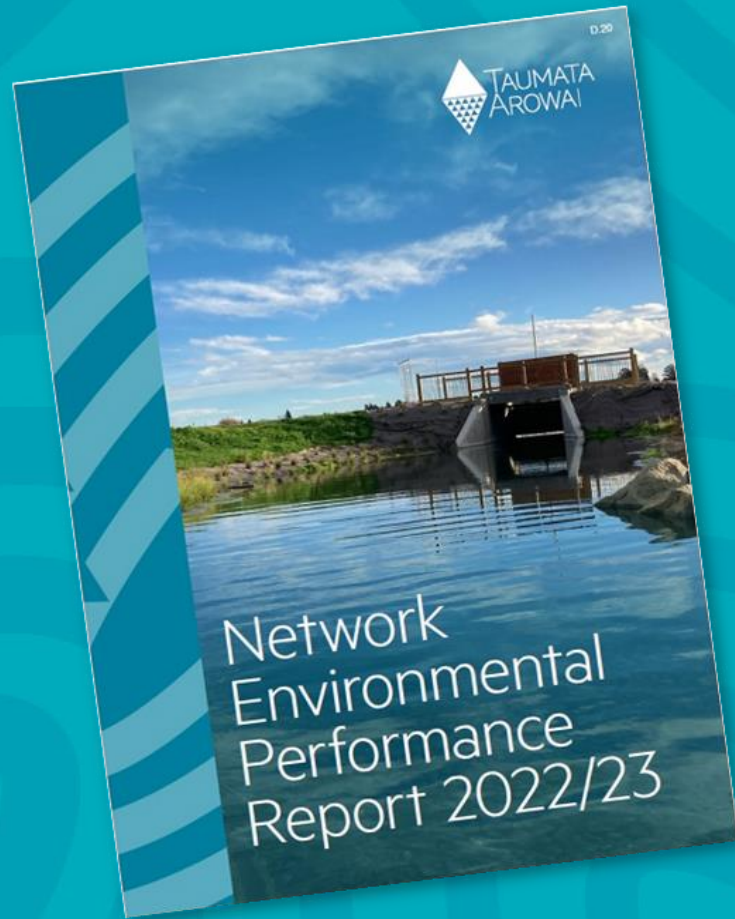


Network Environmental Performance Report Technical Webinar



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Te Whakatauākī a Taumata Arowai

Ko te wai ahau, ko ahau te wai.
He whakaaturanga tātou nō te wai.
Ko te ora te wai ko te ora o te
tangata.
He taonga te wai me tiaki.
Ko wai tātou.
Ko wai tātou.

I am water, water is me.
We are reflections of our water.
The health of the water is the health of
the people.
Water is a treasure that must be
protected.
We are water.
Water is us.



Overview

This session will cover the following:

- Key findings from the report
- Data analysis
- Challenges with the data
- Resources and further support
- Opportunity to answer any further pātai / questions you might have



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Key findings

Key findings

- ▶ Network operators hold over 1,200 consents under the Resource Management Act 1991 for drinking water networks.
 - Provides an indication of the complexity and time involved in understanding consent compliance for the consent holder, regional councils and Taumata Arowai.
- ▶ Reported water loss is high. However, only half of network operators provided water loss data.
 - Average confidence in the data was 'less reliable' indicating that most network operators do not understand their water loss.



Key findings

- ▶ Initial data showing how networks are giving effect to Te Mana o te Wai, including information about the volume of water taken, used and lost, indicates that network operators frequently take and treat more water than consumers use.
 - This suggests network operators have more work to do to ensure their actions are having the least possible effect on the waterbodies they are abstracting from.
- ▶ Most network operators have undertaken an assessment of their critical assets, but no data collected on how these assessments were undertaken, or how network operators identified which assets were ‘critical’, we plan to build on this information in future reports.

Key findings

- ▶ There is limited understanding of the current state of water infrastructure due to the lack of information and low confidence in the data regarding the condition of drinking water infrastructure.
 - All but one network operator was able to provide a percentage of pipes that have received a condition assessment.
 - The data provided indicates that on average 59% of pipes have been assessed over the lifetime of the network and of those assessed 13% are in a poor or very poor condition.



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Data analysis

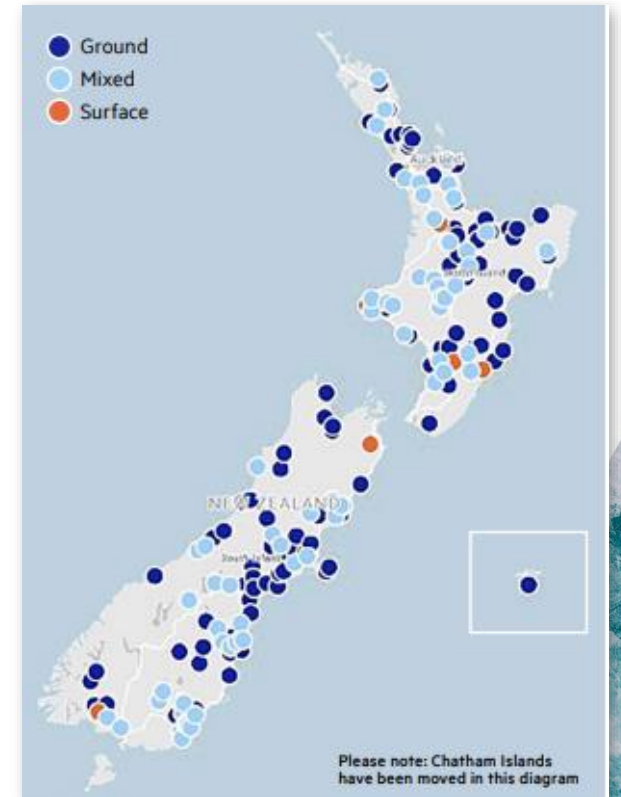
Data analysis

- Separate suppliers into 2 categories:
 - Central Government (Department of Conservation, Ministry of Education, Department of Corrections, New Zealand Defence Force)
 - Several measures do not apply to central government organisations.
 - Because only 3 government organisations provided information, it was difficult to create a separate trend. They have been included in the general analysis.
 - Local Government (Territorial Authorities and Council Controlled Organisations)
 - Regional councils that operate networks also submitted data.



Data analysis

- Comparison of similar data required categorisation by the following:
 - Source Type (ground, surface or mixed ground & surface)
 - Manual review of all sources
 - Population Density (rural, urban and mixed rural & urban)
- Addressing data outliers and missing data
 - If there was missing data for a measure, it was not included in the statistical analysis.
 - The missing data point would also be omitted from any subsequent calculations.
 - For extreme outliers in the dataset, the 5th and 95th percentile were calculated and any data outside of this data was removed.
 - If there were no significant outliers, the entire dataset would be utilised.



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Challenges with data

Quantity of data

- 48 (62%) operators submitted data by the due date, 30 September 2023.
- 21 (27%) operators were given an extension until mid-October.
- 8 (10%) operators submitted data after this date.
- 1 (1%) operator submitted data too late for analysis.



Network data

Operators reported that there were 493 networks. Our analysis was based on 393 of these networks.

- We have become aware of an issue from when the submissions were being processed.
- There were several networks omitted from the final dataset.
- We have removed the raw data from the website while we check the issue.
- As these were smaller networks, we do not believe there will be a change in the overall messages conveyed in the report.



Response rates

- Higher response rate with the district level measures.
 - Lowest response for measures are as follows:
 - R11 – Percent of above ground assets that have received a condition grading (56%)
 - R10 - Percent of above ground assets that have received a poor or very poor condition grading (63%)
 - R17 - Percent of fire hydrants tested in previous five years (65%)
- Lower response rate with the network level measures.
 - Lowest response for measures are as follows:
 - EH12 - Expiry dates for resource consents (42%)
 - RE2 - CARL unit of measurement (47%)
 - RE4 - Median residential water consumption (52%)

Network operator data response for district and network level measures

| Performance measures | Percent response | |
|--|------------------|---------------|
| | District level | Network level |
| Drinking water network information | 97% | 78% |
| Drinking water network connections | – | 68% |
| Volumes of water abstracted (m ³ /year) | 97% | 78% |
| Resource consent compliance | 97% | 62% |
| Fault attendance and resolution | 96% | – |
| Asset condition | 81% | – |
| Water pressure | 96% | 62% |
| Water restrictions | 94% | – |
| Sufficient firefighting water available | 73% | – |
| Water use | 97% | 55% |
| Energy efficiency | 88% | – |
| Critical assets | 93% | – |
| Overall | 92% | 65% |

Confidence rates

- Higher response rate with the district level measures.
 - Lowest response measures are as follows:
 - R17 - Percent of fire hydrants tested in previous five years (7%)
 - R15 – Number of properties affected by water restrictions (14%)
 - R16 - FENZ Code of Practice (SNZ PAS 4509:2008) has been adopted (14%)
- Lower response rate with the network level measures.
 - Lowest response for measures are as follows:
 - EH5 - Water supplied to the drinking water network (5%)
 - EH8 - Non-residential water use (51%)
 - RE2 - CARL unit of measure (51%)

Network operator data response for district and network level measures

| Performance measures | Percent response | |
|--|------------------|---------------|
| | District level | Network level |
| Drinking water network information | 90% | 59% |
| Drinking water network connections | – | 56% |
| Volumes of water abstracted (m ³ /year) | 92% | 28% |
| Resource consent compliance | 93% | 57% |
| Fault attendance and resolution | 90% | – |
| Asset condition | 79% | – |
| Water pressure | 80% | 56% |
| Water restrictions | 15% | – |
| Sufficient firefighting water available | 11% | – |
| Water use | 77% | 54% |
| Energy efficiency | 64% | – |
| Critical assets | 77% | – |
| Overall | 74% | 52% |

Units of measurement and ranges

- There was some confusion around the units for some of the measures
 - District level measures
 - A4 – kilometres of pipe (km)
 - Some suppliers reported values over 100,000
 - RE8 – grid electricity use (kWh)
 - RE9 – Energy use (GJ)
 - RE10 – Energy generation (GJ)
 - Some suppliers generated more energy that used
 - Network level measures
 - R12 – Average system pressure (kPa)
 - RE2 – Current annual real loss (L/connection/day or m³/km of pipe/day)
 - RE4 - Median residential water consumption (L/connection/day)
- Several of the measure also have large data ranges

Units of measurement and ranges

| Measure | Minimum Value | Maximum Value |
|--|---------------|-------------------|
| A4- kilometres of pipe | 0.7 | 603,2249 |
| RE8 - grid electricity use | 61,482 | 44,167,558 |
| RE9 - energy use | 0.0001 | 22,277 |
| R10 - energy generation | 11 | 117,040 |
| R12 - Average system pressure | – | 1,100 |
| RE2 - CARL | – | 14,259,336 |
| RE4 - Median residential water consumption | 5 | 9,784 |

Water consumption and loss

- Median Residential Water Use
 - Only 65% of the operators provided information
 - Suppliers had a median confidence level of “Reliable” with a response rate of 52%
- Current Annual Real Loss
 - Significant confusion between the units of measurement (L/connection/day, m³/km pipe/day, m³/day, m³/year) with on a 60% response rate
 - Median confidence of “Reliable” with a 51% response rate
 - Difficult to compare values with different units
 - Only 73% of the suppliers provided information regarding the actual value
 - Suppliers had a median confidence level of “Reliable” with a response rate of 55%

Water consumption and loss

Number of networks in each of the Infrastructure Leakage Index (ILI) bands

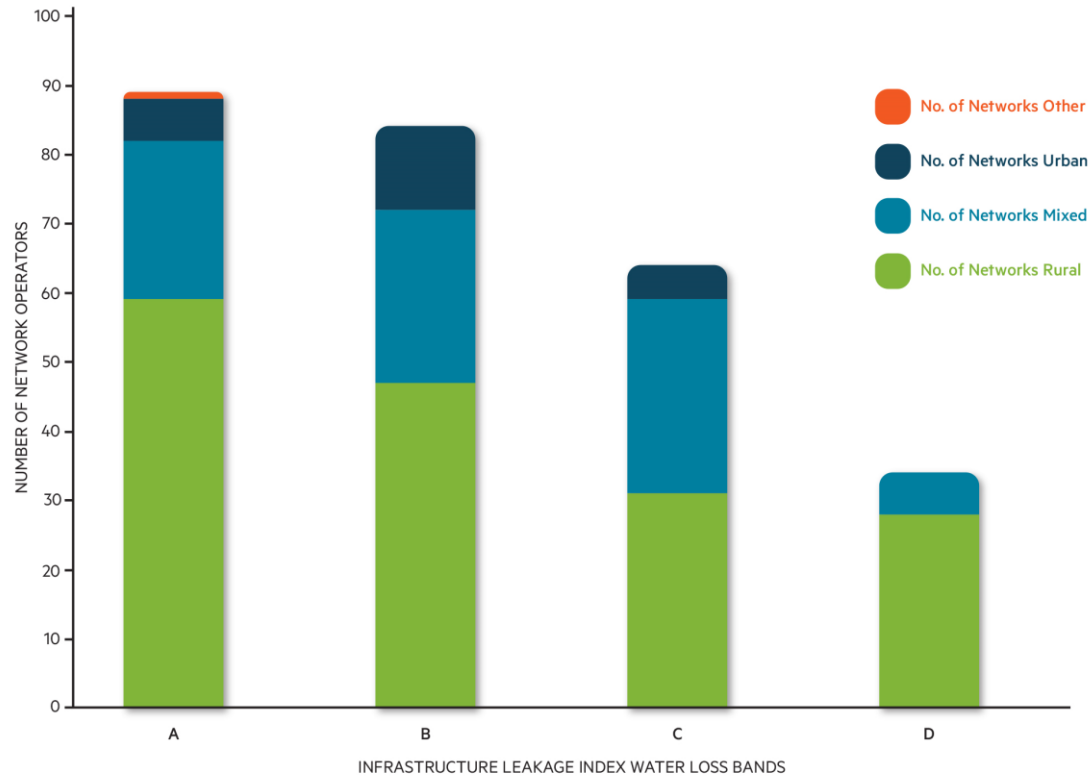


Table 12: Current Annual Real Loss (CARL) in volume loss per connection per day by population density, as reported by network operators

| CARL (L/connection/day) | Average | Median | 5 th percentile | 95 th percentile |
|-------------------------|---------|--------|----------------------------|-----------------------------|
| Rural | 14,984 | 25 | 0 | 53,837 |
| Mixed | 63,420 | 204 | 0 | 62,678 |
| Urban | 628,429 | 233 | 52 | 116,027 |

| Parameters | CARL |
|--------------------------|---------------|
| Data response rate | 58% |
| Median data confidence | Less reliable |
| Confidence response rate | 55% |

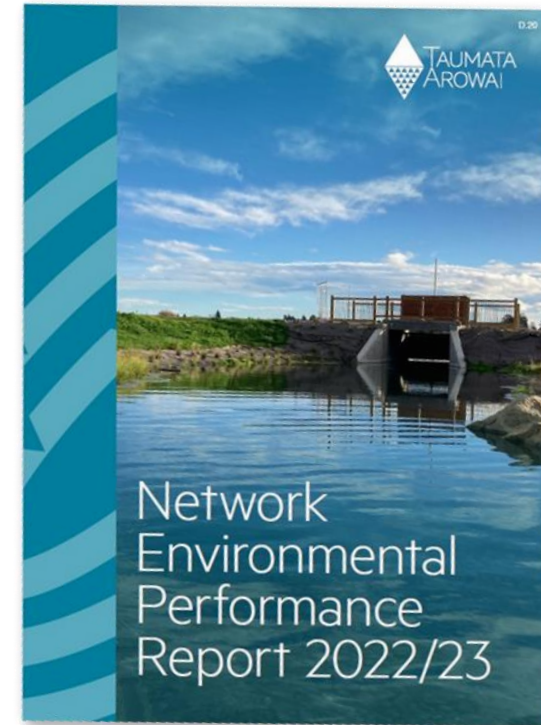
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Resources and further support

Useful resources

- For a copy of the report visit: taumataarowai.govt.nz/water-services-insights-and-performance/
- Read more about our network environmental performance measures on our [website](#).
- If you have any questions – get in touch via measures@taumataarowai.govt.nz



Reporting on measures for 2023/24

- **Reporting template:** A new template has been produced for 2023/24 and is on our [website](#).
- **Webinars:** Join the following webinars where we will provide an overview of the new reporting template and how to complete it.
 - Wednesday 17 July, 11am – 12pm. [Register here](#)
 - Thursday 18 July, 1pm – 2pm. [Register here](#)
- **Drop-in sessions:** There will also be a series of online drop-in sessions where you can ask any questions you may have.
 - Tuesday 6 August, 1pm – 1.30pm. [Register here](#)
 - Tuesday 20 August, 1pm – 1.30pm. [Register here](#)
 - Tuesday 10 September, 1pm – 1.30pm. [Register here](#)
 - Tuesday 24 September, 1pm – 1.30pm. [Register here](#)

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Patai?