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Access to safe drinking-water

This factsheet presents information on the population with access to safe drinking-water in New Zealand. Access to safe drinking-water is measured by access to drinking-water that complies with bacteriological, protozoal, and chemical standards. Boil-water notices may be issued to residents if there is a risk of microbial contamination in their drinking-water.

Within the population on registered supplies, 78.0% (3.3 million people) had access to drinking-water that met all bacteriological, protozoal and chemical safety requirements.

In the 2020/21 reporting period, about 4.2 million New Zealanders (83.6% of the population) received water from registered drinking-water supplies.

Smaller supplies (serving 101-500 people) were less likely to serve the population drinking-water that met the bacteriological and protozoal safety standards than the larger supplies.

Permanent boil-water notices were issued to 27 drinking-water supplies, affecting an estimated 7,372 people in 2020/21.

Safe drinking-water

complies with the Drinking-Water Standards

based on three measures

Ministry of Health 2022

Bacteriological

Protozoal

Chemical

What is 'safe' drinking-water?

Safe drinking-water is vital for human health. The presence of microbes or chemicals in a drinking-water supply may render that water unsafe to drink. Water that is contaminated with pathogens may cause diseases, particularly gastrointestinal diseases. These waterborne diseases can cause diarrhoea and vomiting. Careful selection of the source and treatment of drinking-water supplies can ensure the water is safe to drink. Registered drinking-water supplies in New Zealand must be regularly tested for microbiological and chemical compliance with the Drinking-water Standards for New Zealand.

Whether or not a drinking-water supply complies with the Drinking-Water Standards is based on three measures (Ministry of Health 2022):

- Bacteriological compliance is determined by monitoring whether a supply contains *E.coli* or similar bacteria.
- Protozoal compliance is determined by whether water treatment processes have resulted in an acceptable level of inactivation and/or removal of protozoa such as *Cryptosporidium*.
- Chemical compliance is determined by the adequacy of monitoring chemical hazards in the water and whether these chemicals exceed a level that would pose a health risk to people.

A 'boil-water notice' may be issued to residents by a supplier if there is a heightened risk that tap water may have microbial contamination, and therefore not safe to consume. The notice indicates that tap water may not be safe for consumption and must be boiled before use. A temporary boil-water notice is issued if there is a short-term heightened risk, as can happen following extreme weather events. A permanent boil-water notice indicates an ongoing heightened risk of microbial contamination.

Approximately three-quarters of New Zealanders on registered supplies received safe drinking-water

About 4.2 million New Zealanders (83.6% of the population) received water from registered drinking-water supplies during the 2020/21 reporting period. The remainder (an estimated 823,000 people) received water from very small community supplies (typically serving fewer than 100 people) or sourced their own water from 'self-supplies,' (e.g., rainwater tanks).

Of the population on registered supplies, 95.6% (4.0million) had access to water that complied with the bacteriological standard, 78.7% (3.3million) to water that met the protozoal standard, and 98.9% (4.2million) to chemically compliant drinking-water. In the 2020/21 reporting period, 78.0% (3.3million) had access to safe drinking-water that met all three requirements (Table 1).

Table 1 Population on registered community drinking-water supplies with access to safe drinking-water, 2020/21 reporting period

Access to safe drinking-water	Estimated population	Percent *(of those on registered supplies)*
Bacteriological compliance	4,018,450	95.6%
Protozoal compliance	3,305,335	78.7%
Chemical compliance	4,157,059	98.9%
Overall compliance	**3,277,560**	**78%**

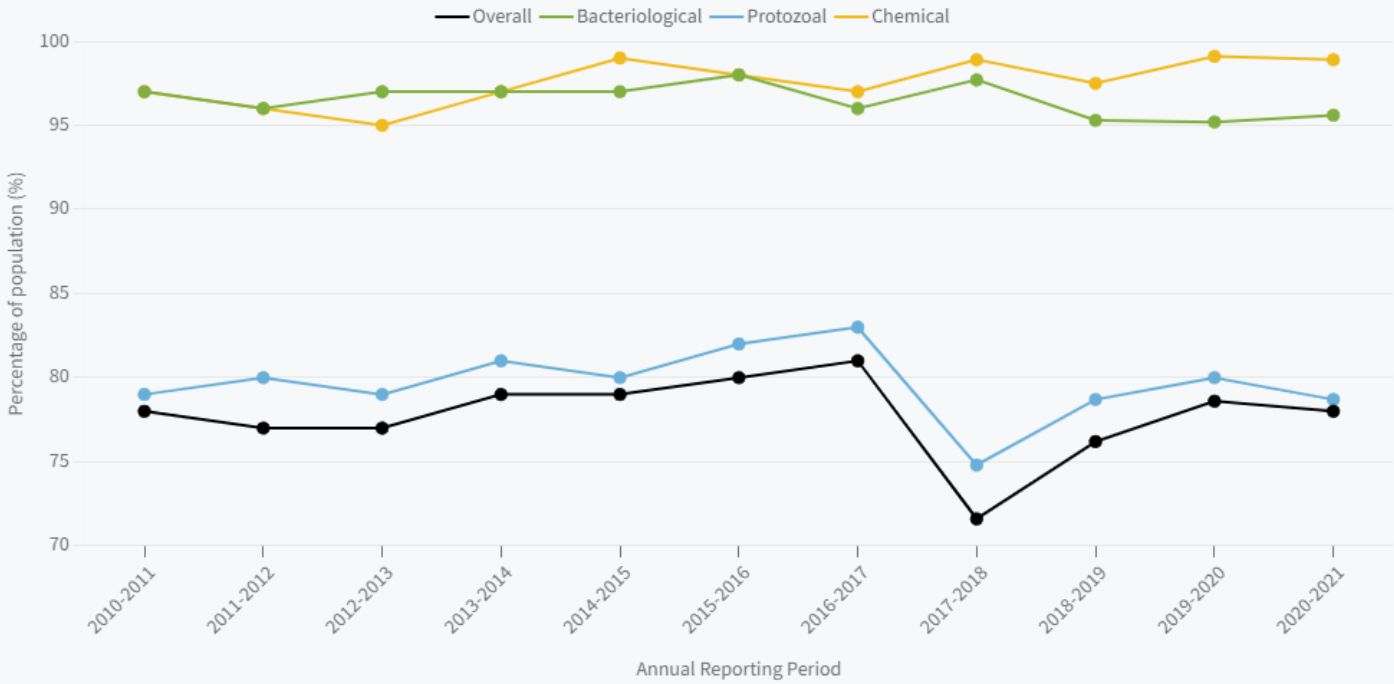
Note: The total population estimated to have access to a registered drinking-water supply is 4,202,000.

Source: Ministry of Health 2022

The percentage of the population receiving drinking-water from chemical or bacteriologically compliant supplies has remained consistently above 95%, from the 2010/11 annual reporting period onward (Figure 1).

The percentage of the population with access to drinking-water that meets protozoal compliance standards peaked in 2016/17 (83%) but dropped to its lowest proportion of the population (75%) in 2017/18 due to several large supplies losing 'secure bore water' status.

Figure 1 Percentage of the population on registered community drinking-water supplies with access to safe drinking-water, 2010–2021



Note: The 95% confidence intervals for this graph are small and too close to the values plotted to be displayed.

Source: Ministry of Health 2022

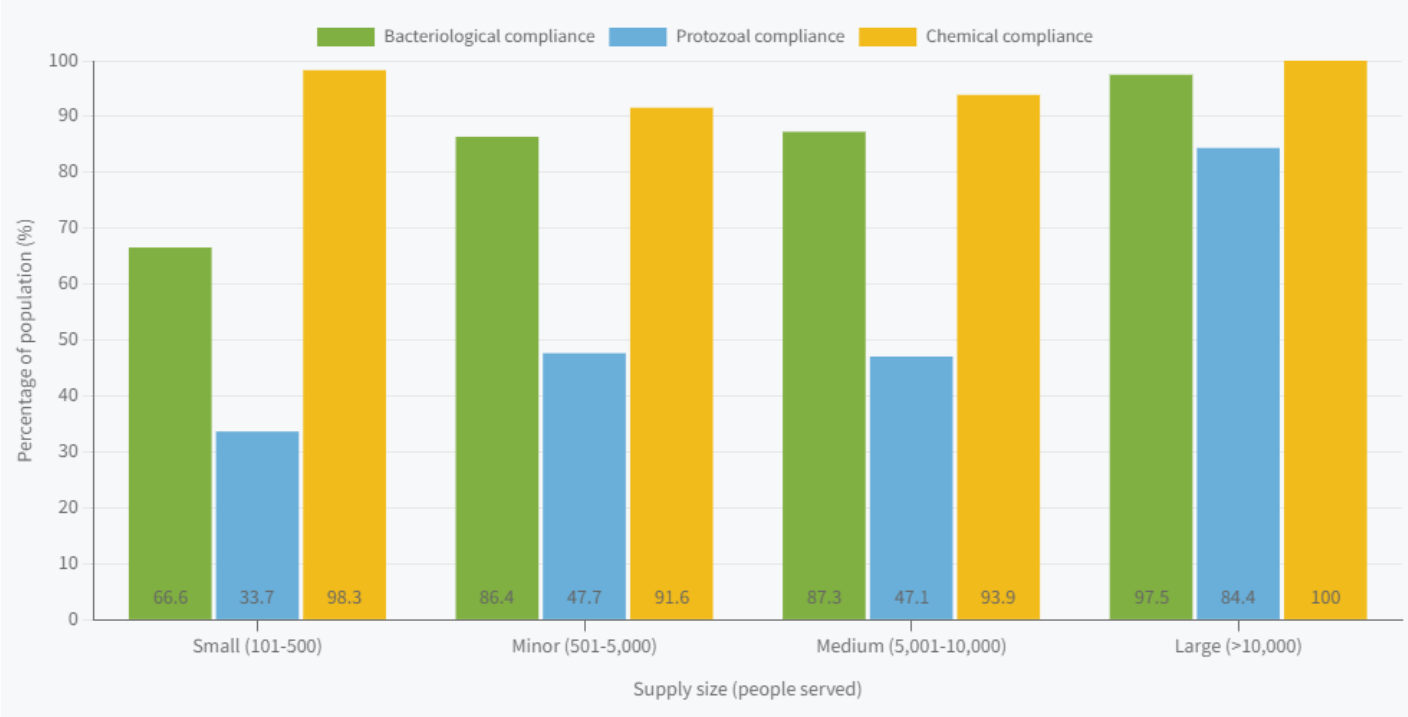
More stringent requirements for water quality monitoring came into effect on the 1st of August 2019. The main result of these requirements was to make compliance with the three standards compulsory rather than only requiring drinking-water suppliers to 'take all practicable steps' to comply (Ministry of Health 2020). These changes do not yet appear to have had a noticeable impact on levels of compliance.

Small supplies were less likely to meet bacteriological standards than larger supplies.

Populations with access to supplies in the 'small' category (that serve 101–500 people) were less likely to be provided water that met the bacteriological or protozoal requirements than larger supplies (that serve >501) (Figure 2). Only 66.6 of the population on small supplies received water that met the bacteriological standard, and just 33.7 received water that met the protozoal standard, compared with 97.5 and 84.4 respectively of the population on large supplies. Chemical compliance was achieved for over 90% of the population across all supply sizes with the large supplies achieving compliance for 100% of the population.

As access to bacteriological and protozoal-compliant water improves with increasing supply size, there may be an issue with higher compliance costs per capita in smaller supplies (Ministry of Health 2021). Small supplies tend to be in small rural settlements, whereas the largest supplies serve New Zealand's major cities (i.e., urban areas).

Figure 2 Percentage of the population with access to safe drinking-water by supply population size, 2020/21 reporting period



Source: Ministry of Health 2022

Bacteriological, Protozoal, and Chemical compliance varied around New Zealand

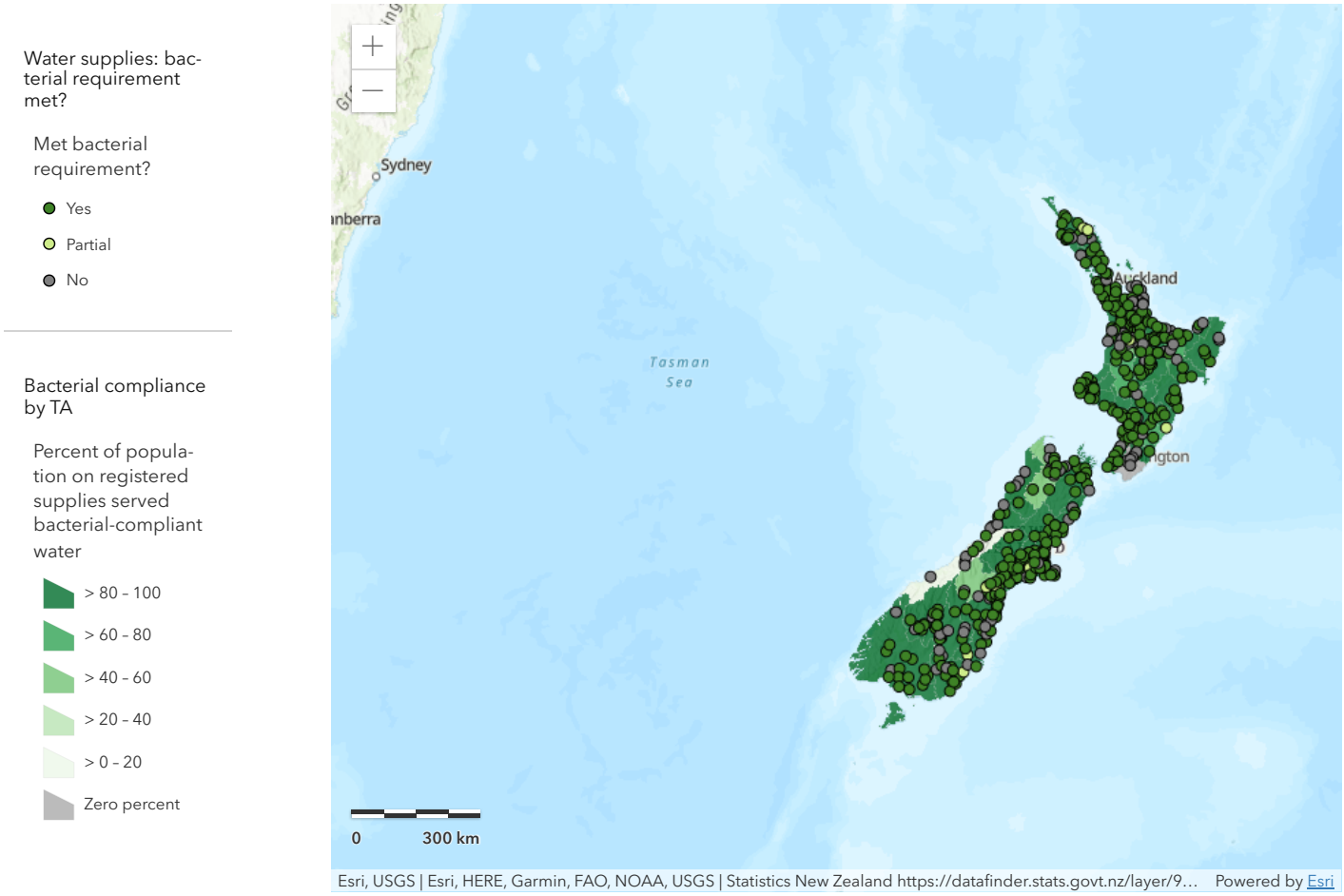
Areas with low bacteriological compliance were primarily rural areas outside of the major urban sites (Figure 3). Protozoal compliance was low in rural areas of the South Island (Figure 4).

Chemical compliance was low in the Central North Island with several non-compliant supplies near the Taupo Volcanic Zone (Figure 5). The most common reason for non-compliance in the Central North Island was arsenic, for which the Maximum Acceptable Value was exceeded in seven supplies, affecting 6,204 people supplied by the Taupo District Council. Arsenic can occur naturally in soil or water due to geothermal activity (Robinson et al. 2004) and is associated with an elevated risk of some cancers (Smith et al. 1998).

Chemical compliance levels were also low in the Otago region, notably in the Clutha District. Supplies from the Clutha District Council that failed the chemical compliance also failed to comply with protozoal standards, affecting 9,618 people.

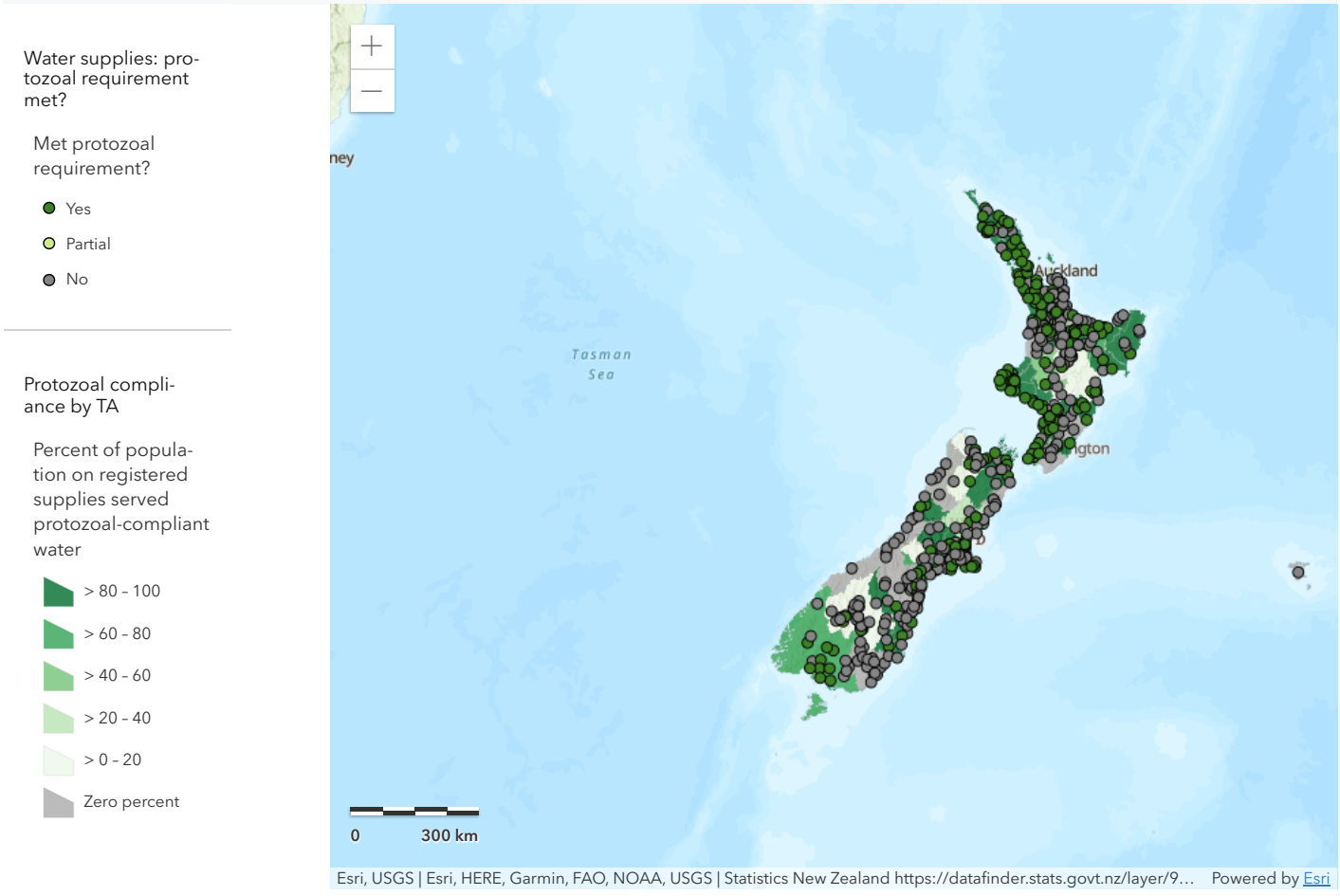
Elsewhere, excessive levels of, or failure to adequately monitor, by-products of the chemicals used to disinfect drinking-water resulted in 10 supplies failing to comply. The failure to comply to chemical standards in these areas affected 28,820 people.

Figure 3 Percentage of population with access to bacteriologically compliant drinking-water by territorial authority (TA), 2020/21 reporting period



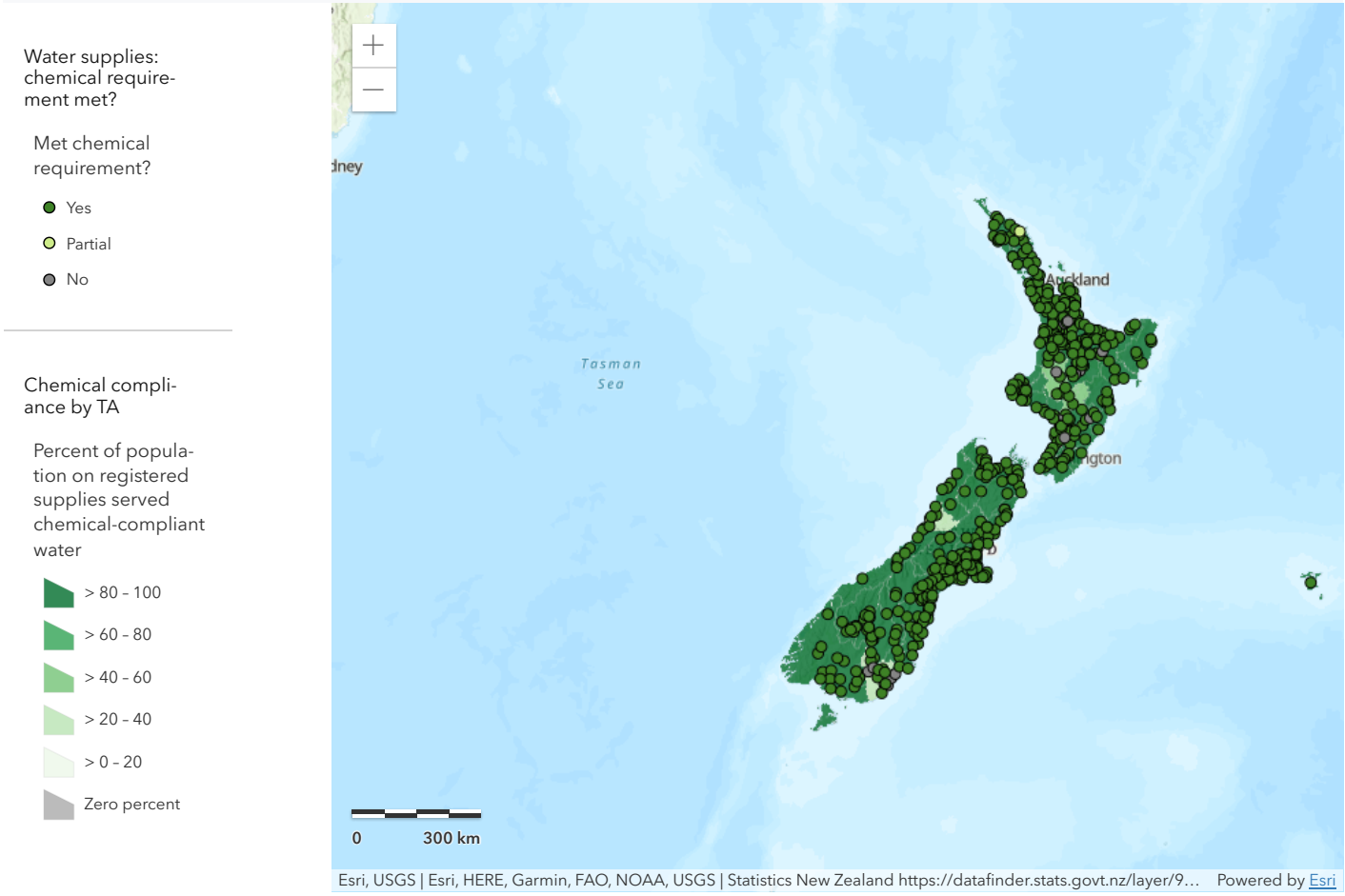
Source: Ministry of Health 2022

Figure 4 Percentage of population with access to protozoal compliant drinking-water by territorial authority (TA), 2020/21 reporting period



Source: Ministry of Health 2022

Figure 5 Percentage of population with access to chemically compliant drinking-water by territorial authority (TA), 2020/21 reporting period



Source: Ministry of Health 2022

Boil-water notices were mainly confined to smaller supplies

In the 2020/21 reporting period, 83 supplies issued a boil-water notice (Table 2). Of these, 27 were permanent boil-water notices, nearly all of which were for small supplies and affected an estimated 7,372 people in total. The largest supply that issued a permanent notice was Awatere, in the Marlborough region, which supplied around 1,300 people (Figure 6).

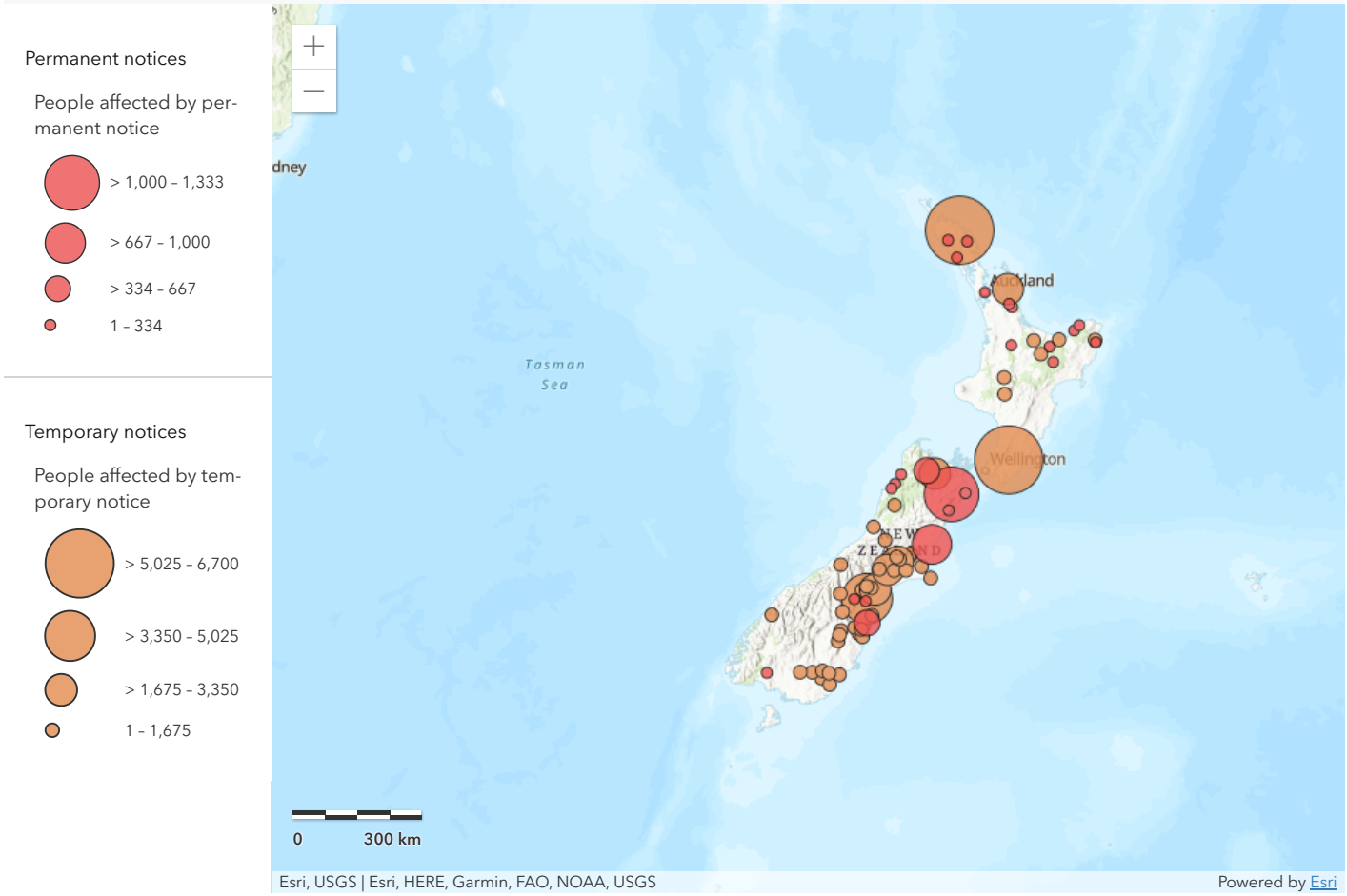
A further 56 temporary notices were issued, affecting up to 52,795 people (Table 2).

Table 2 Number of people affected by permanent or temporary boil-water notices by supply population size, during the 2020/21 reporting period

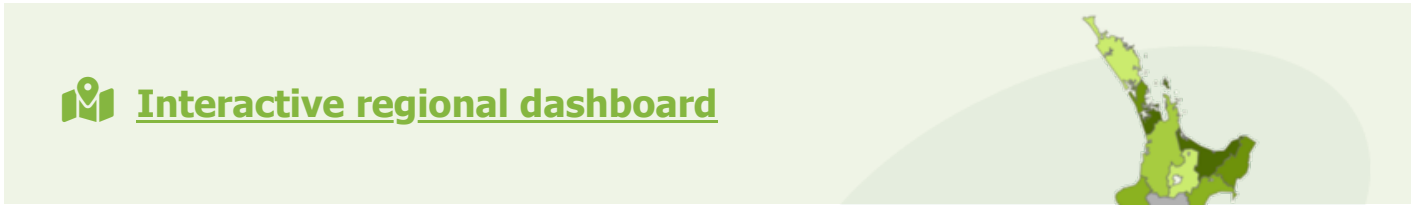
Supply size	Number of supplies that issued a permanent notice	Number of people affected by permanent notices	Number of supplies that issued a temporary notice	Number of people affected by temporary notices
Small (101-500)	25	5,358	28	7,990
Minor (501-5,000)	2	2,014	26	32,875
Medium (5,001-10,000)	0	0	2	11,930
Large (>10,000)	0	0	0	0
Total	**27**	**7,372**	**56**	**52,795**

Source: Ministry of Health 2022

Figure 6 Supplies that issued permanent or temporary boil-water notices by population affected, 2020/21 reporting period



Source: Ministry of Health 2022



Data for this indicator

This indicator presents information based on data analysis published in the Annual Report on Drinking-water Quality 2020–2021, published by the New Zealand Ministry of Health in April 2022.

The Annual Report on Drinking-Water Quality summarises drinking-water compliance from supplies that served populations of more than 100 people in the period from 1 July 2020 to 30 June 2021.

For descriptive information about the data, see the **Metadata Sheet**

References

Ministry of Health. 2020. Annual Report on Drinking-water Quality 2018–2019. Wellington: Ministry of Health.

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Smith AH, Goycolea M, Haque R, Biggs ML. 1998. Marked increase in bladder and lung cancer mortality in a region of Northern Chile due to arsenic in drinking water. American Journal of Epidemiology 147(7): 660-669.

Previous factsheet(s):

2021 2017 2016

Other related topics include:

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Waterborne diseases related to drinking-water

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