Information topic	Details
Indicator name	**Faecal indicator bacteria at recreational bathing sites**
Domain and topic	Recreational water
Indicator definition and units	The number of occasions on which a bathing site tests unsafe to swim in terms of concentrations of faecal indicator bacteria (bacterial units per 100ml of water), and the 95th hazen percentile value of all test results at a given site over the past five years of monitoring.
Data source	Land, Air, Water Aotearoa: Recreational bathing water quality raw dataset
Numerator	• Number of occasions that a sampled concentration of Enterococci or *E. coli* exceeds 280 / 550 bacteria per 100ml of water. • Number of sites where the 95th hazen percentile value of Enterococci/*E. coli* exceeds 500/540 bacteria (respectively) per 100ml.
Denominator	• Number of samples at a given site • Number of sites in a given area
Methodology	Results are presented by swimming site type, region and urban/rural classification. The Hazen method of calculating percentiles has been used, utilising the formulas given in (McBride & Payne, 2009). The Hazen method provides a 'middle of the road' estimate of the percentile value in contrast to other common methods of calculation.
Time period and time scale	October 2015 – March 2020 Monitoring is conducted only during the summer bathing season (October-March). Samples are typically taken on a weekly basis, but the exact interval for each sample site may vary.
Population coverage	N/A
Spatial Coverage	Selected bathing sites across New Zealand, excluding the Auckland region
Measures of frequency	Results are presented by swimming site type, region and urban/rural classification
Confidence interval methodology	No confidence intervals have been used for this factsheet as neither intervals nor the necessary information to calculate them were included in the data source.

Limitations of indicator	Results reflect water quality at point locations, not quality of the entire water body. Water quality may fluctuate day-to-day in response to weather, flood or pollution events. Water quality outside the bathing season is not represented in the data or factored into calculations of bathing risk.
Limitations of data source	No raw water quality monitoring results are provided for the Auckland region. As the Auckland region does not supply the results of water quality sampling to LAWA, and instead only provides modelled data *based* on in-field measurements, the region has been excluded from both the recreational bathing dataset, and so all analyses in this factsheet as field measurements and predicted data are not comparable. The Wellington region also uses modelled data, but also provides LAWA with field measurements for inclusion in the recreational bathing dataset.
Created by	Land, Air, Water Aotearoa
Related indicators	Waterborne diseases related to recreational water Number and density of livestock
For more information	https://www.lawa.org.nz/explore-data/swimming/
References	https://www.lawa.org.nz/learn/factsheets/coastal-and-freshwater-recreation-monitoring/ McBride G, Payne G (2009) *Hazen Percentile Calculator*. URL: https://environment.govt.nz/assets/Publications/Files/hazen-percentile-calculator-2.xls Accessed: 16/10/2021