

# Analysis of sampling methodologies for noise pollution assessment and the impact on the population

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Today, noise pollution is an increasing environmental stressor. Noise maps are recognised as the main tool for assessing and managing environmental noise, but their accuracy largely depends on the sampling method used. The sampling methods most commonly used by different researchers (grid, legislative road types and categorisation methods) were analysed and compared using the city of Talca (Chile) as a test case. The results show that the stratification of sound values in road categories has a significantly lower prediction error and a higher capacity for discrimination and prediction than in the legislative road types used by the Ministry of Transport and Telecommunications in Chile. Also, the use of one or another method implies significant differences in the assessment of population exposure to noise pollution. Thus, the selection of a suitable method for performing noise maps through measurements is essential to achieve an accurate assessment of the impact of noise pollution on the population. © 2016 by the authors; licensee MDPI, Basel, Switzerland.

Noise annoyance

Noise pollution

Noise predictive capacity

Sampling methods

environmental stress

noise pollution

pollution exposure

pollution monitoring

sampling

annoyance

Chile

classification

human

noise pollution

population exposure

prediction

sampling

scientist

stratification

telecommunication

analysis

city

environmental exposure

noise

Chile

Maule

Talca

Chile

Cities

Environmental Exposure

Humans

Noise