Vulnerability zones to nitrate pollution in an Alpine region (South Tyrol, Italy)

ROBERTA BOTTARIN¹, UTA SCHIRPKE¹ & ULRIKE TAPPEINER¹,²

¹ EURAC – European Academy of Bolzano, Institute for Alpine Environment, Viale Druso 1, 39100 Bolzano, Italy
roberta.bottarin@eurac.edu
² University of Innsbruck, Institute of Ecology, Sternwartestr. 15, 6020 Innsbruck, Austria

Abstract The individuality of vulnerability zones to nitrate pollution of surface water and groundwater is of fundamental significance for an improved land use policy. A first study to identify areas vulnerable to nitrate pollution of agricultural origin was performed in South Tyrol. The survey intended to focus its attention on the relationship between agriculture and nitrogen concentrations in surface water and groundwater for the whole provincial territory. Representative parameters contributing to determining contamination status were taken into account: potential nitrogen pollutant loads of agricultural as well as zootechnical origin, environmental factors, e.g. distribution of precipitation, and also territorial factors, e.g. slope of the used agricultural surface. Combining the parameters it was possible to calculate a potential vulnerability for each municipality.

Key words agriculturally derived nitrates; vulnerable zones; water pollution; preliminary recognition survey; Central Alps