

REVIEW OF PREDICTING TOOLS FOR “CONTRIBUTING AREAS”

Martin Frey¹, Nadine Konz², Volker Prasuhn², Christian Stamm¹

*¹Eawag, Swiss Federal Institute of Aquatic Science and Technology,
Überlandstrasse 133,
8600 Dübendorf, Switzerland*

*²Agroscope Reckenholz-Tänikon Research Station ART, Reckenholzstrasse 191,
8046 Zürich, Switzerland*

Areas with disproportionately high pollutant losses are of great environmental concern and have been recognized as priority areas for the control of water pollution. Water bodies may be polluted by pesticides that impair the aquatic ecosystem, by nutrients causing eutrophication and by soil erosion which additionally leads to clogging in the river bed. To reduce this diffuse pollution efficient mitigations have to be found. Policy makers are interested in options with maximal effect by simultaneously maintaining the costs as low as possible. Therefore, limiting mitigations to the most critical areas would be most effective. So far, different studies on diffuse water pollution indicate that losses of pesticides, phosphorus, nitrogen, and sediments to surface water originate from a limited part of a catchment (contributing areas).

We searched the literature for scientific proofs that confirm the contributing area concept. Furthermore, we looked for predicting tools that allow identifying such risk areas. Thereby, we are most interested in how well these different tools perform. Therefore, we scanned the literature for evaluation data on contributing areas and analysed them statistically by using a Receiver Operating Characteristic (ROC) analysis. The aim is to present how this methodology can be useful for evaluating the accuracy of indicators that predict the risk for water pollution of a certain area and present results of such evaluations.