

Zessner M., Lindtner, S., (2003): A method for Load Estimations of municipal point Source Pollution; Vortrag: 5th International Biennial Conference and Exhibition, Olomouc/Olmütz, Czech Republic

Abstract: Based on calculations of discharges of N, P from households into waste water and on the detailed evaluation of data from 76 municipal waste water treatments plants this paper presents ranges of specific loads of inhabitants and population equivalents in the raw waste water. In addition data of these treatment plants have been evaluated in respect to the treatment efficiency for nitrogen and phosphorus (average reduction rates) in dependency of the design characteristic (with or without nitrification, denitrification or enhanced phosphorus removal). The results of the investigation show that the specific N and P loads from households in Austria lie within the range of 1.6 – 2.0 g P/(inhabitant.d) and 11 – 13 g N/(inhabitant.d). The specific contribution of industries to municipal waste water varies between 0.3 to 2.0 gP/(pe.d) and 0 to 13 g N/(pe.d) with average values of 1.3 g P/(pe.d) and 6.5 g N/(pe.d) (pe...population equivalent). As average values for municipal waste water (contributions from household and industry) this leads to specific influent loads of 1.5 g P/(pe.d) and 8.8 g N/(pe.d). Average treatment efficiencies of treatment plants are for instance 50 % nitrogen removal in treatment plants with nitrification and 80 % in treatment plants with nitrification/denitrification. For phosphorus a removal of about 85 % can be expected in case the treatment plant was designed for enhanced phosphorus removal. Finally a method for load estimations based on standard values as mentioned above was tested for the estimation of emission from municipal point sources of selected regions. Estimates based on this method for single treatment plants led to significant deviations from measured values, but for a group of more than about 10 treatment plants of a test region it was possible to produce reliable emission estimates which match well with measured data.

Keywords: Management plans, nitrogen, phosphorus, specific loads, treatment efficiency, waste water treatment