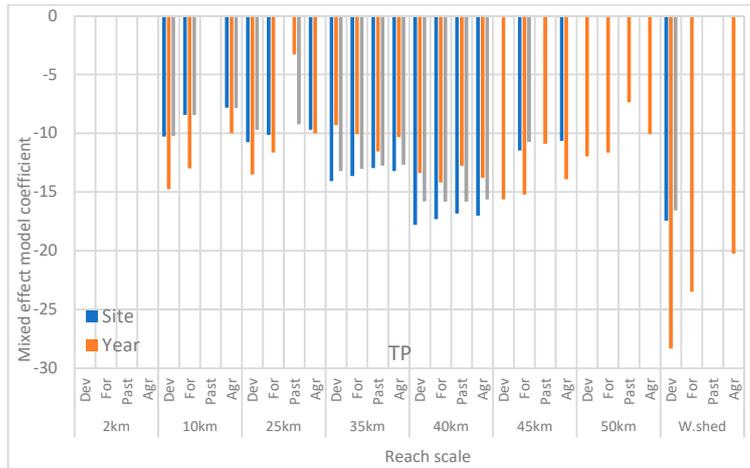
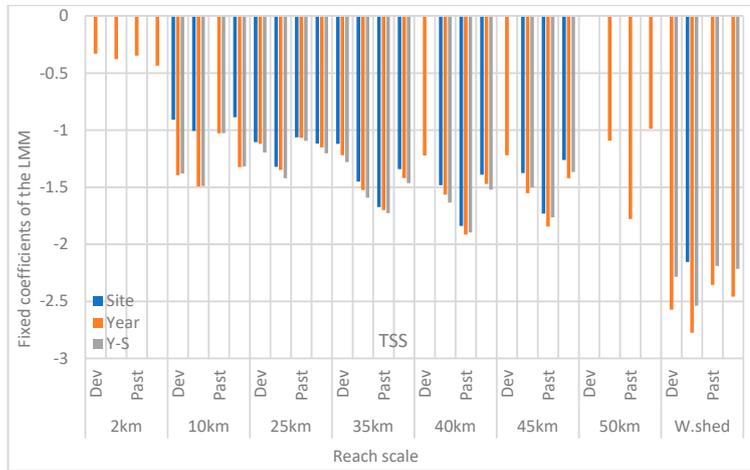


Supplementary Materials

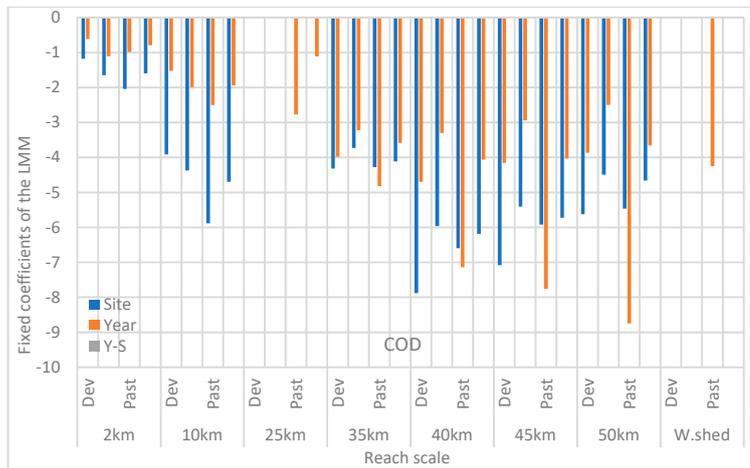
a



b



c



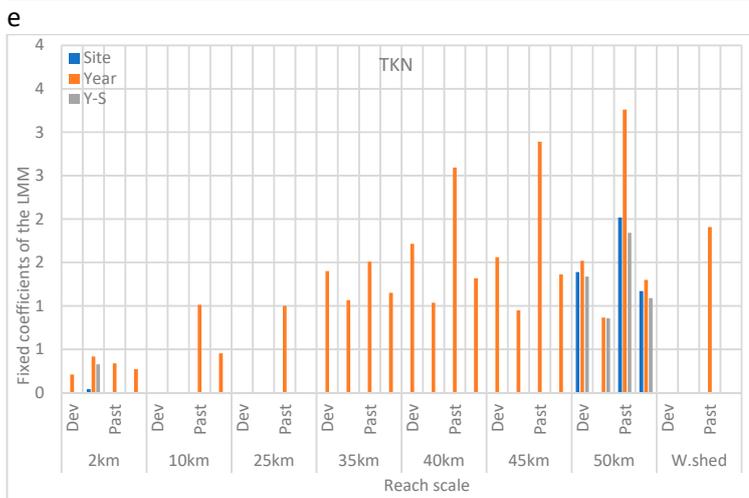
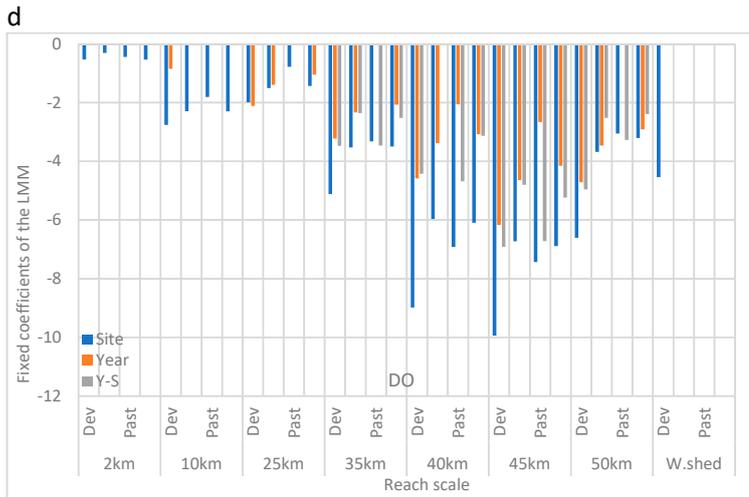


Figure S1. Significant coefficients (significance level = 0.1) in the mixed effect models describing the associations between land use and water quality. (a) TP, (b) TSS, (c) COD, (d) DO, (e) TKN.

The dependent variables were transformed using the Box-Cox technique to find adequate power transformation (or logarithmic) that produces a normal distribution with homoscedastic residuals.

Power transformation values for each dependent variable.

Dependent variable	COD	DO	NNN	TP	TKN	TSS
Power transformation	0.29	0.55	0.06	-0.45	-0.22	-0.27

Example. The NNN model data example was performed at a reach distance of 40 km with site as random effect.

T.N. $\sim 1.733 - 1.21 * \text{Developed} - 0.85 * \text{Forest} - 0.58 * \text{Pasture} - 0.50 * \text{Agriculture} + (1 | \text{Site}) [40 \text{ km}]$, where site is a random intercept with fixed mean.

Fixed coefficients values for LMM at reach distance of 40 km with Site as Random effects.

Developed -1.21		Forest -0.85		Pasture -0.58		Agriculture -0.50	
Limit	Value	Limit	Value	Limit	Value	Limit	Value
0.177	-0.220	0.304	-0.258	0.094	-0.054	0.874	-0.437
0.042	-0.050	0.019	-0.016	0.004	-0.002	0.537	-0.268

Table S1. Random coefficients values for LMM at reach distance of 40 km with Site as Random effects.

Site	(Intercept)
WAW030-0022	-0.0083
WAW010-0063	-0.0057
WDE050-0002	-0.0005
WED090-0004	-0.0051
WEF020-0002	0.0055
WEU030-0011	0.0032
WLV160-0001	-0.0072
WMI020-0002	0.0017
WSU020-0003	0.0065
WTI150-0011	0.0016
WUW040-0005	0.0012
WUW080-0002	0.0096
WWU100-0001	-0.0023

Equations of the best models of each dependent variable.

Dependent Variable	Equation	Distance
COD	C.O.D. \sim 5.914 -3.862 * Developed-2.497 * Forest-8.745 * Pasture-3.655 * Agriculture + (1 Year)	50 km
DO	D.O. \sim 8.758 -6.914 * Developed- 4.823 * Forest - 6.723 * Pasture-5.234 * Agriculture + (1 Site) + (1 Year)	45 km
NNN	T.N. \sim 1.7801 - 1.2363 * Developed - 0.9211 * Forest - 0.5148 *Agriculture + (1 Site) + (1 Year)	45 km
TP	T.P. \sim 10.378 - 10.256 * Developed - 8.453 * Forest - 7.871 *Agriculture + (1 Site) + (1 Year)	10 km
TKN	T.K.N. \sim 0.0156 +1.338 *Developed + 6.858 *Forest + 1.842*Pasture +1.093 * Agriculture + (1 Site) + (1 Year)	50 km
TSS	T.S.S. \sim 1.715 - 1.3805*Developed - 1.4888*Forest - 1.0248*Pasture - 1.3163*Agriculture + (1 Site) + (1 Year)	10 km