Appendix II

Ecological, angler and spatial heterogeneity drive social and ecological outcomes in an integrated landscape model of freshwater recreational fisheries

Matsumura, S., Beardmore, B., Haider, W., Dieckmann, U., Arlinghaus, R.

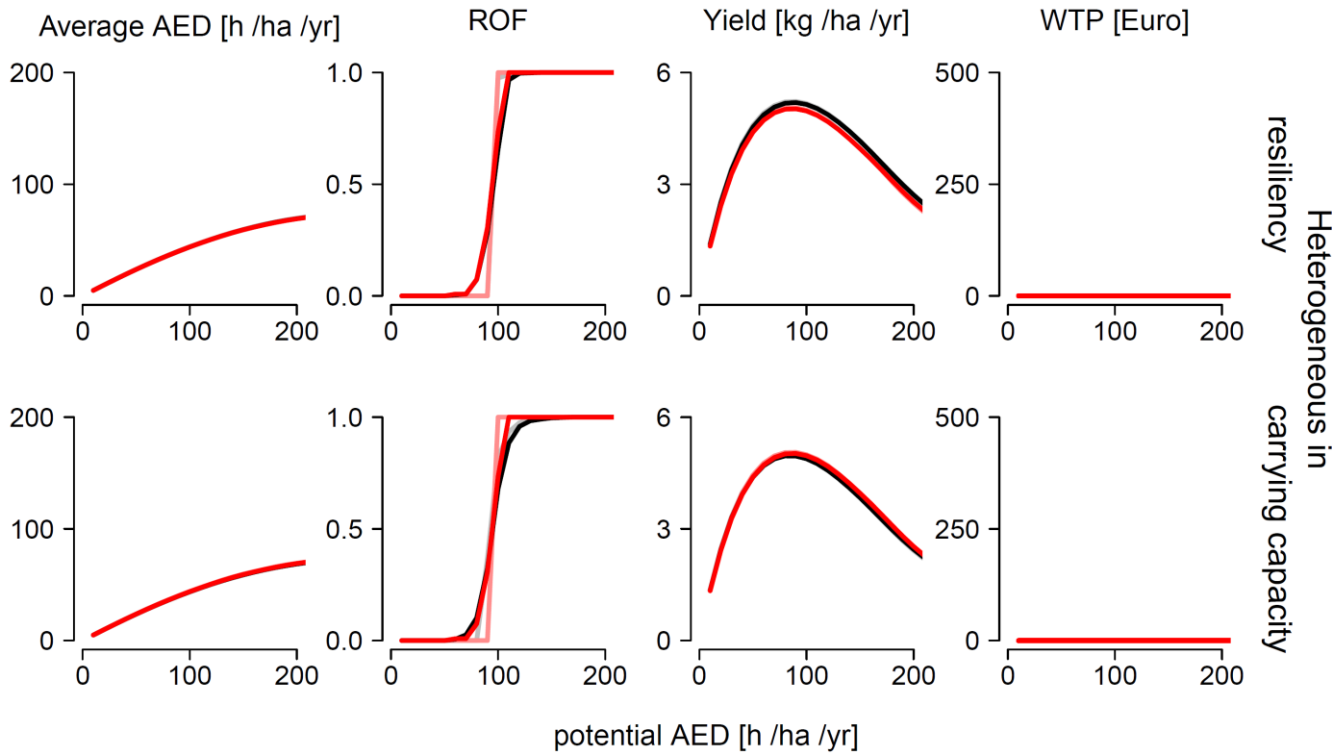

Figure S2. Comparison between the heterogeneous (urban: black, rural: gray) and homogeneous (urban: red, rural: pink) landscapes. Lakes are identical in the homogeneous landscape, while lakes vary in their resiliency (top) or carrying capacity (bottom) in the heterogeneous landscape. Regional outcomes in terms of average lake-specific angling effort, degree of overexploitation of lakes (ROF = recruitment overfished stocks), biomass yield, and angler welfare as represented by average willingness-to-pay (WTP) per year in the rural and urban residential patterns in the absence of harvest regulations are shown.

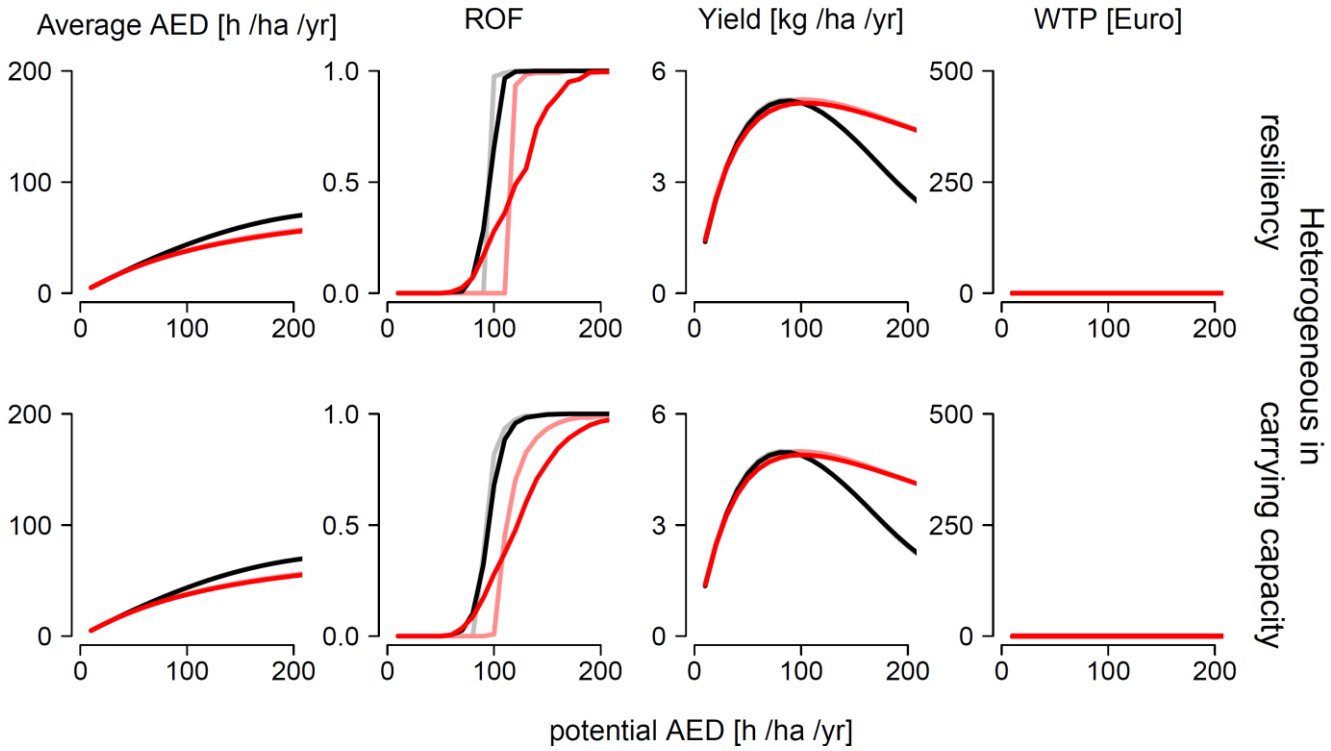

Figure S3. Comparison between the 4-class heterogeneous (urban: black, rural: gray) and 1-class homogeneous (urban: red, rural: pink) angler models. Regional outcomes in angling effort, overexploitation of lakes (ROF = recruitment overfished lakes), biomass yield and angler welfare as represented by average willingness-to-pay (WTP) per year in the rural and urban residential patterns in the absence of harvest regulations are shown. Lakes vary in their resiliency (top) or carrying capacity (bottom).

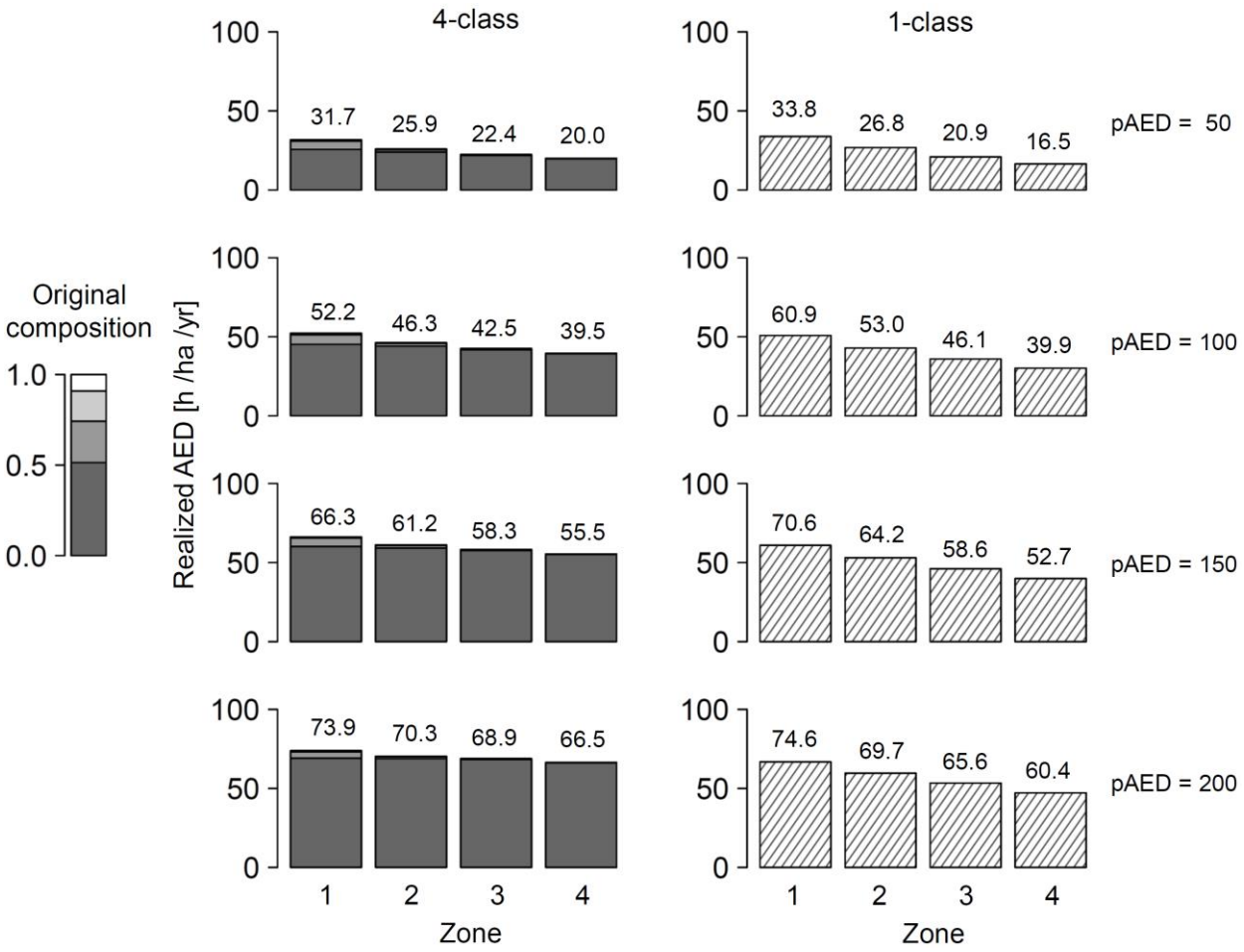

Figure S4. Proportions of each angler class within the realised angling effort density (AED, angling-h ha^{-1}) in the urban case in the absence of harvest regulations. Lakes vary in their resiliency. Lakes are categorized by the distance from the metropolis: Zone 1 (<28 km), 2 (<56 km) 3 (<84 km) and 4 (≥84 km). The original proportion of the angler classes is shown on the left.

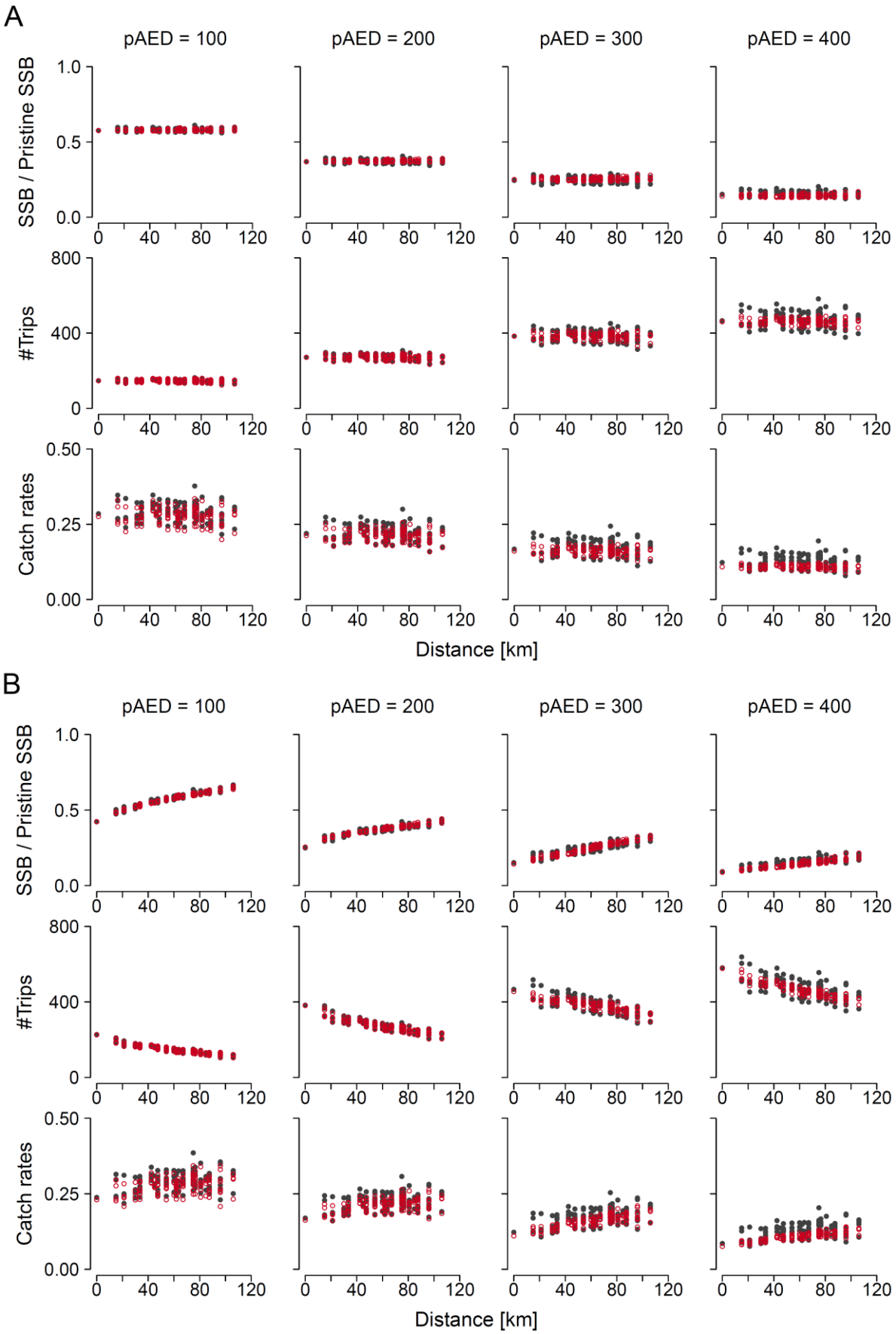

Figure S5. Relationship between the distance from the central lake and the degree of exploitation (represented by SSB/SSB_0), the number of trips taken per year to each lake, and average angler catch rates (pike per hour) at equilibrium with the presence of one-size-fits all harvest regulations in the rural (A) and urban (B) residential patterns. Each lake is represented by a circle. Variation among lakes in their pristine SSB arises either from variation in their resiliency (black) or carrying capacity (red). From the left to the right: pAED = potential annual angling effort density of 100, 200, 300, and 400 [h ha^{-1}].

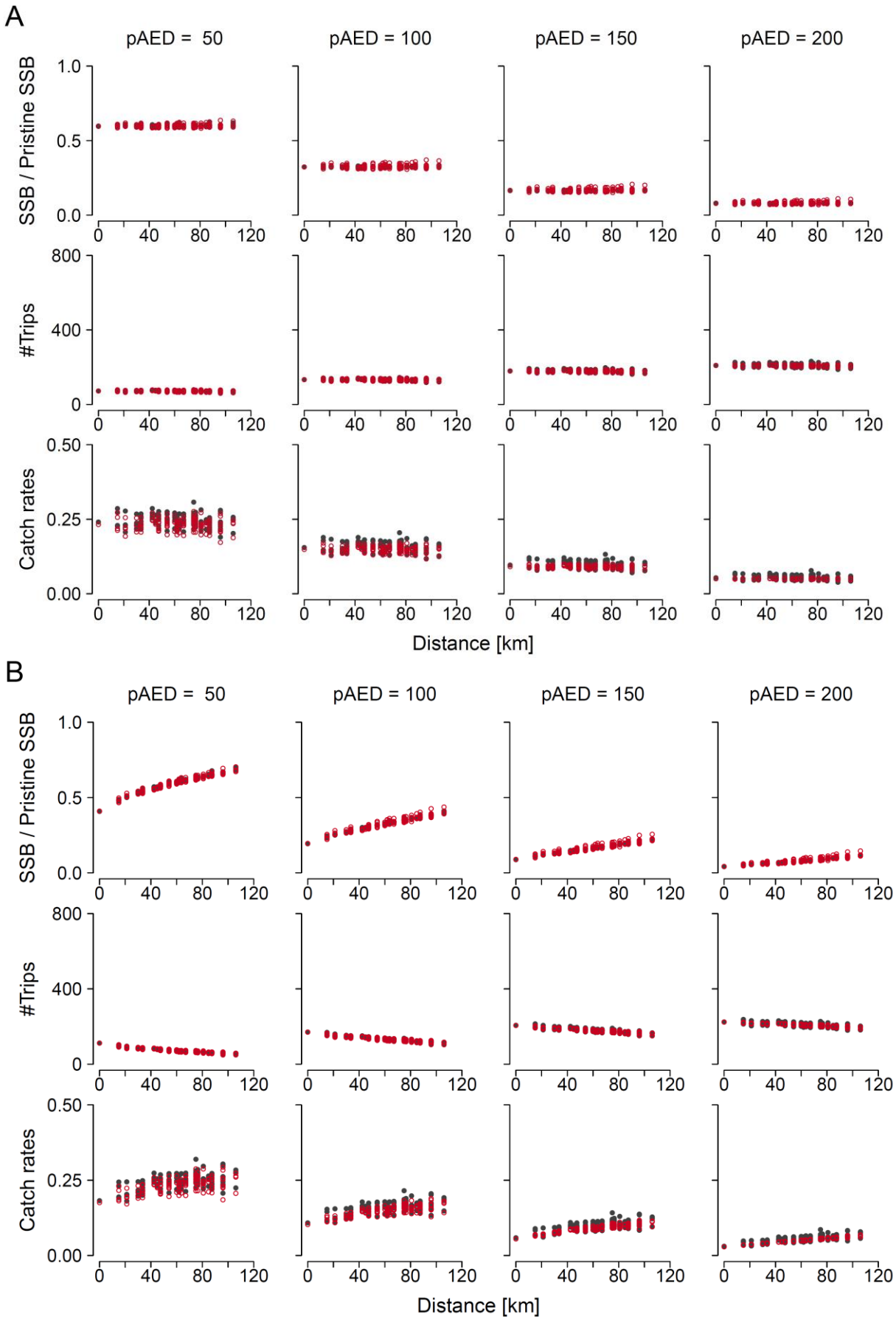

Figure S6. Relationship between the distance from the central lake and the degree of exploitation (represented by SSB/SSB_0), the number of trips taken per year to each lake, and average angler catch rates (pike per hour) at equilibrium in the absence of harvest regulations in the rural (A) and urban (B) landscapes. Each lake is represented by a circle. Variation among lakes in their pristine SSB arises either from variation in their resiliency (black) or carrying capacity (red). From the left to the right: pAED = potential annual angling effort density of 50, 100, 150, and 200 [h ha^{-1}].