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318 **Author contributions**

319 KR conceived and designed the study. KR and MD conducted the experiments. MD carried
320 out the microdissections of intestinal structures. KR performed the statistical analysis and
321 the writing of the manuscript. All authors participated in manuscript editing and final
322 approval.

323 **Conflict of Interest**

324 The authors declare that the research was conducted in the absence of any commercial or
325 financial relationships that could be construed as a potential conflict of interest.

326 **Statement of Ethics**

327 The authors have no ethical conflicts to disclose. All applicable international, national and/or
328 institutional guidelines for the care and use of animals were followed. The experiments were
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335 **References**

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526 **Figure legend**

527 **Fig. 1** Relative **A** gut length, **B** gut mass, and **C** average gut diameter of *Xenopus laevis* larvae
528 in response to natural (cellulose) and artificial fibers (microplastics) that reduce food quality
529 (i.e., nutrient and energy density). Shown are residuals versus snout-vent length. Boxes and
530 whiskers show 25th to 75th and 10th to 90th percentiles, respectively; black lines indicate the
531 median. Pairwise multiple comparisons were conducted using Mann-Whitney-U test with
532 Bonferroni correction. Asterisks indicate significant differences between cohorts within a
533 nitrate concentration (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$). Total number of individuals = 45;
534 total number of aquaria (i.e., replicates and statistical units) = 9.