Trophic transfer and individual impact of nano-sized polystyrene in a four-species freshwater food chain
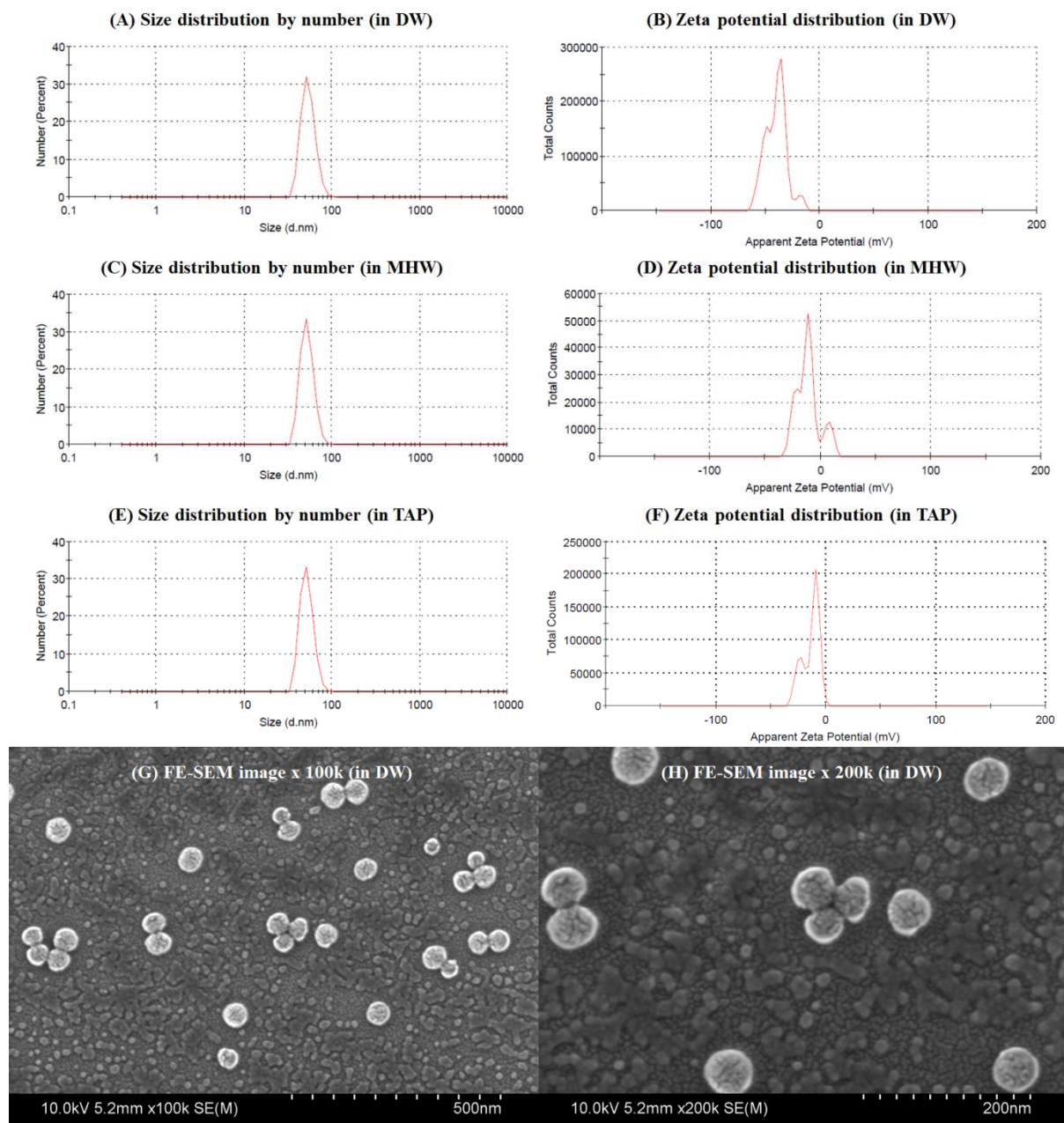
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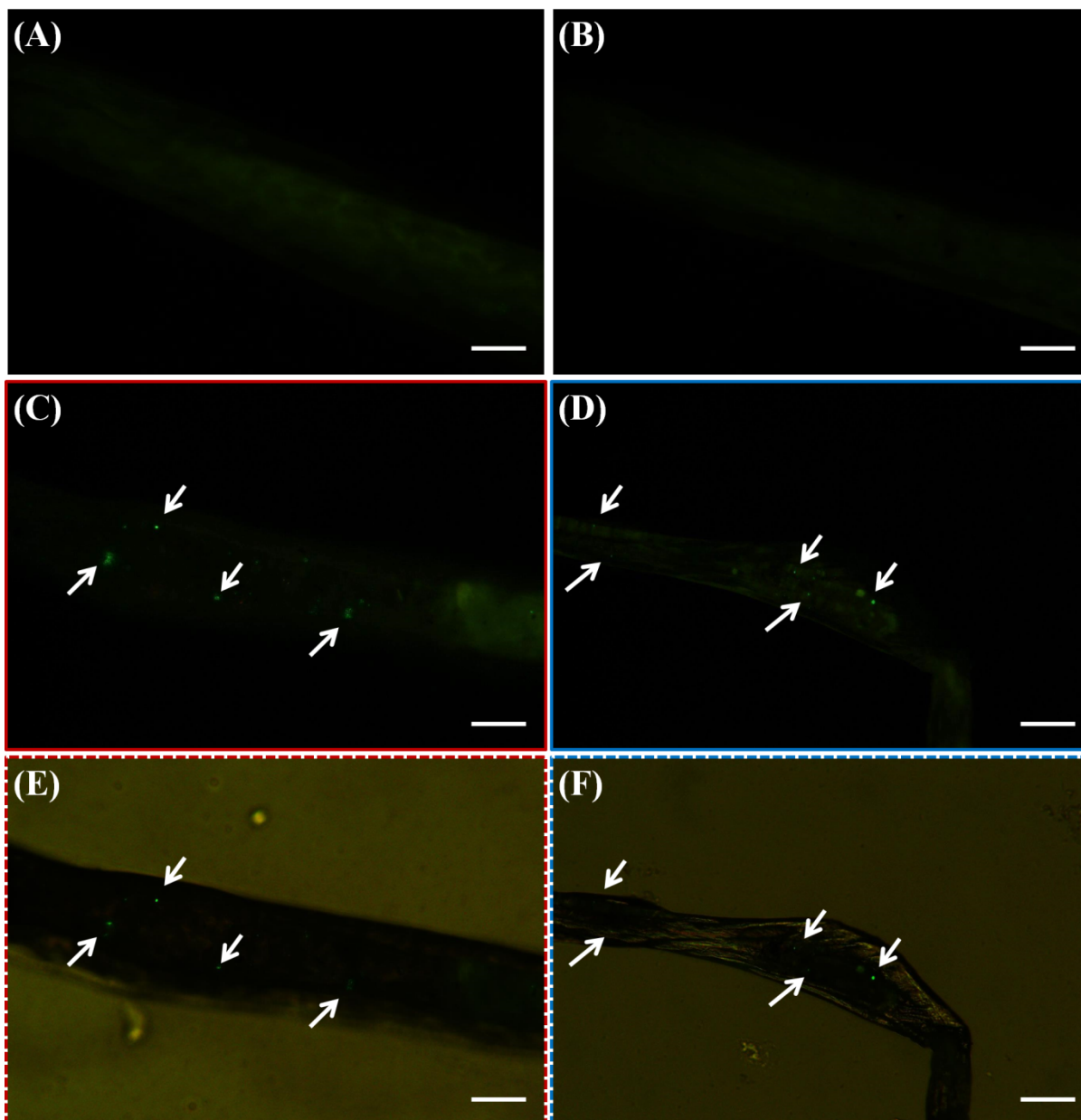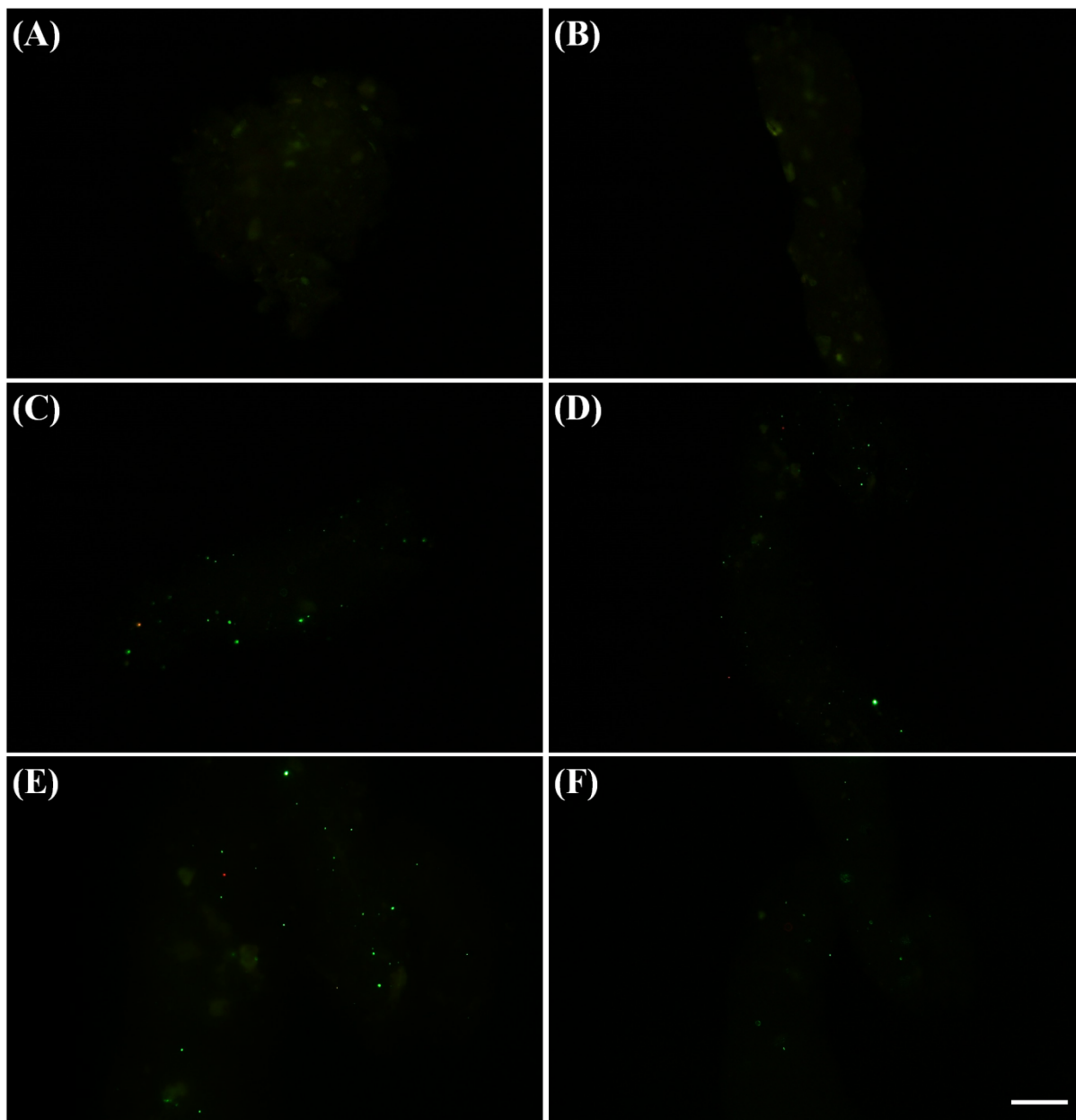

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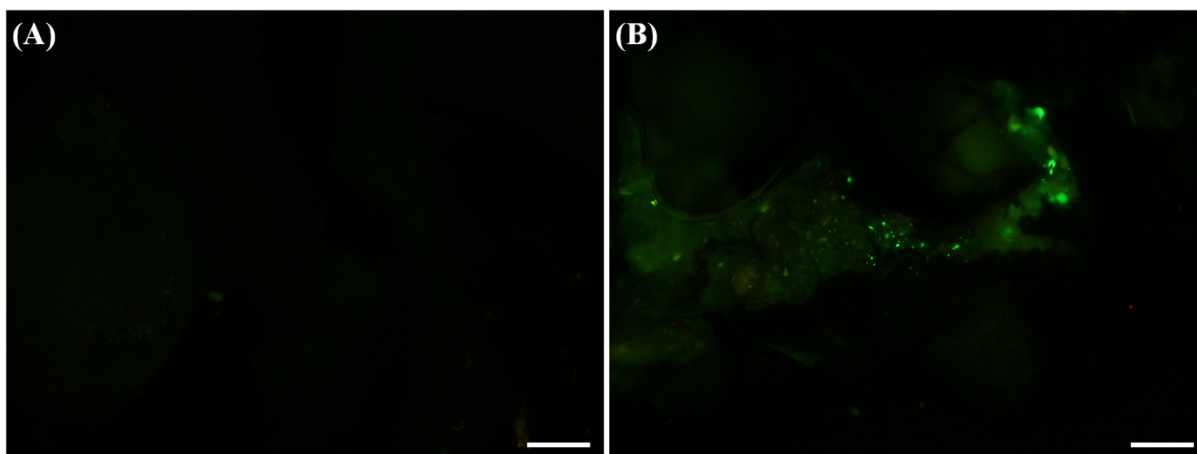
Supplementary Figure 1. Size distribution and ζ-potential of nano-sized polystyrene (nPS) in distilled water (DW) (A, B), moderately hard water (MHW) (C, D) and tris-acetate-phosphate medium (TAP) (E, F). Images of fluorescent nPS were taken using a field-emission scanning electron microscope (FE-SEM) (G, H).
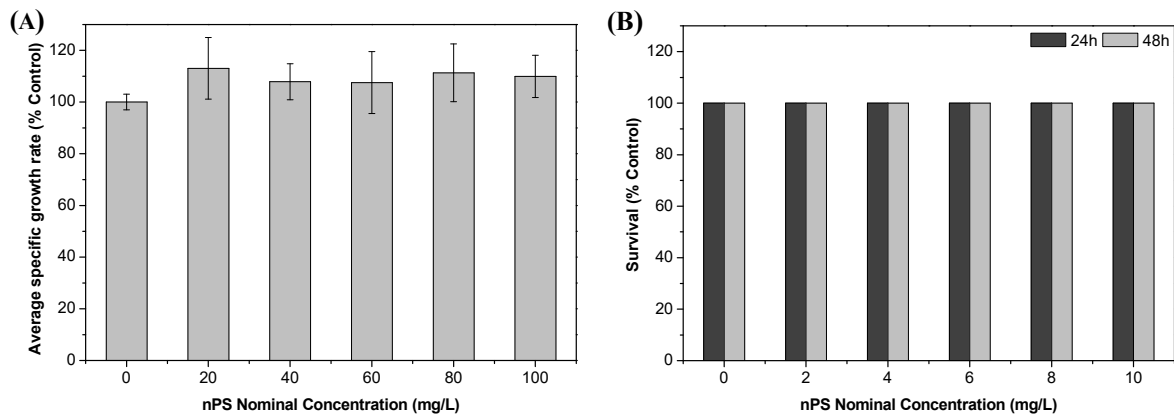
Supplementary Figure 2. Fluorescent images of *Oryzias sinensis* intestine. Control groups (A, B) were not exposed to nano-sized polystyrene (nPS), while exposed groups (C, D) were fed contaminated *Daphnia magna*. E and F are merged (bright field and fluorescent) images of C and D, respectively. White arrows indicate fluorescent nPS. Scale bar = 200 μm.
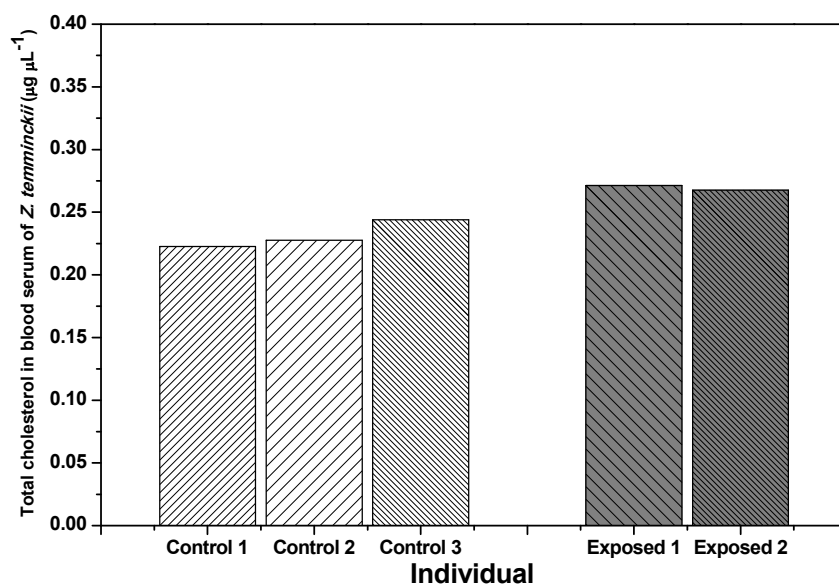
Supplementary Figure 3. Feces of *Oryzias sinensis*. Control groups (A, B) were not exposed to nano-sized polystyrene (nPS), while exposed groups (C–F) were fed contaminated *Daphnia magna* for 48 h. Scale bar = 200 μm.

Supplementary Figure 4. The feces of *Zacco temminckii*. Green fluorescence indicating nano-sized polystyrene (nPS) was not observed in the control group (A) but was apparent in the exposed group (B), exposed through the diet to nPS for 24 h. Scale bar = 200 μm.

Supplementary Figure 5. The individual toxicity of nano-sized polystyrene (nPS) (51-nm diameter) on (A) *Chlamydomonas reinhardtii* ($p > 0.05$) and (B) *Daphnia magna* ($p > 0.05$).

Supplementary Figure 6. Total amount of cholesterol in blood serum of *Zacco temminckii* from control group (C1–C3) and exposed group (E1–E2). Each column represents the amount of total cholesterol in each individual.