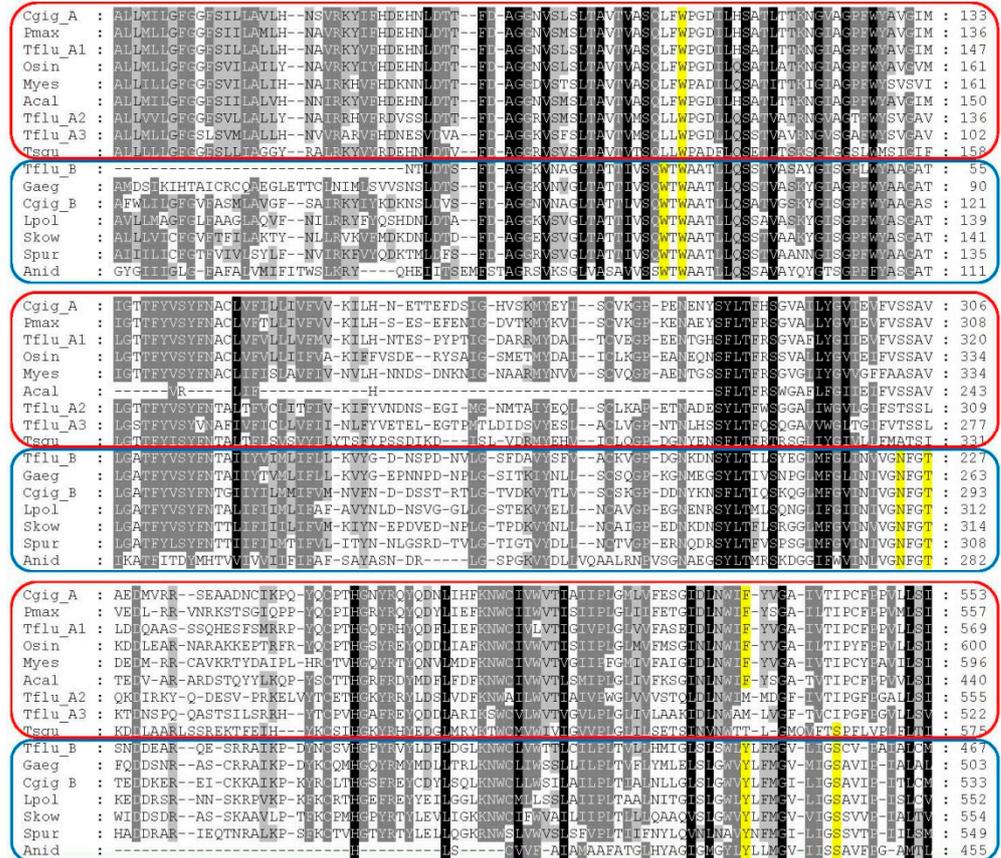


**Figure S1.** Transfer regimes used to acclimate *Theodoxus fluviatilis* individuals to media with different salinities. Snails were initially maintained in freshwater (FW ecotype, salinity 0.5 ‰) or brackish water (BW ecotype, salinity of 8 ‰). The animals were then transferred in a stepwise manner over 4 days to their final salinities. The FW animals were transferred to a maximum salinity of 18 ‰. The BW animals were either brought to a final salinity of 28 ‰ or acclimated to 0.5 ‰. Animals were maintained at these salinities for another 5 days.



**Figure S2.** Multiple sequence alignment of putative invertebrate DUR3-like urea transporters. The black background indicates conserved amino acid residues; the gray background indicates similar residues. The red boxes enclose UT-A type transporters, the blue boxes enclose UT-B type transporters. The conserved W/W-N/T motifs as well as the Y437 and S446 residues in UT-B type transporters are highlighted in yellow. For space reasons only the relevant molecule segments are shown. Tflu = *Theodoxus fluviatilis*; Cgig-A = *Crassostrea gigas* XP\_034300743.1; Cgig-B = *Crassostrea gigas* XP\_01441136.2; Lpol = *Limulus polyphemus* XP\_13776744.1; Skow = *Saccoglossus kowalevskii* XP\_006823326.1; Spur = *Strongylocentrotus purpuratus* XP\_030829061.1; Gaeg = *Gigantopelta aegis* XP\_041377330.1; Tsqu = *Tridacna squamosa* ARQ84970.1; Osin = *Octopus sinensis* XP\_029639211.1;

Myes = *Mizuhopecten yessoensis* OWF45146.1; Pmax = *Pecten maximus* XP\_033744244.1; Acal = *Aplysia californica* XP\_035827281.1; Anid = *Aspergillus nidulans* ACZ62639.1.