Abstract. Pollution seriously threatens wetland habitats, one of the main pollutants coming from heavy metals. The iron (Fe), zinc (Zn), copper (Cu), mercury (Hg), cadmium (Cd) and lead (Pb) were assessed in the water, sediment and in the giant mudskipper fish, *Periophthalmodon schlosseri*. The assessment of heavy metals was carried out by using an atomic absorption reader (AA-6200 AAS Flame Emission Spectrophotometer Shimadzu). The average concentrations of these metals in water decreased as follows: Fe>Pb>Zn>Hg>Cd>Cu, while metals in the sediment samples decreased as follows: Fe>Zn>Cu>Pb>Cd>Hg. Heavy metal concentrations in fish tissue and skin mucus were higher than the concentrations found in water bodies. The highest metal concentrations were found as follows: Fe in the kidney, Zn in the skin mucus, Cu in the kidney, Hg in the skin mucus, Cd in the liver and Pb in the skin mucus. In all fish tissues and skin mucus, Fe concentration was the highest. The bio-water accumulation factors of *P. schlosseri* tissue and skin mucus were substantially higher than the bio-sediment accumulation factors, suggesting that this fish can be utilized as a bioindicator for certain heavy metals in water. Because the coefficients of variation (CV) of heavy metal accumulation in fish tissues vary, these combined three fish tissue types (liver, kidney and skin mucus) have the potential to be used as an instrument to evaluate heavy metal pollutants such as Fe, Zn, Cu, Hg, Pb and Cd. There was a correlation between the heavy metal concentrations in water, sediment, kidney, liver and skin mucus, demonstrating that giant mudskipper fish can accumulate heavy metals in these tissue types.
Key Words: bioaccumulation, bioindicator, heavy metal pollution, skin mucus.