Concentrations of twelve trace metals were determined in sediments, water and tissues of carps (Cyprinus carpio L., 1758) which were captured at four locations from the Karacaören(I) Dam Lake. The muscle, liver and gill of the fish samples were prepared by using microwave digestion technique and the analysis of trace metals was performed with inductively coupled plasma optic emission spectrometry (ICP-OES). The abundance of total metals in water and sediments varied in the decreasing order of Fe>Al>Mn>Ni>Cu>Zn>Pb>Co>Cr>B>Cd>Hg. Significant differences in concentrations of analyzed metals were observed among different tissues between the genders. While Al and Mn have the highest concentrations in the liver, Fe, Cd, Zn and Ni were the highest in gills. Although the muscle had the lowest concentrations of most studied elements, it had the highest concentration of Pb. As a bioindicator for assessment of metal pollution, this study may be useful, although this issue requires further study.