This paper presents results on the concentration of $^{137}$Cs, $^{90}$Sr, $^3$H in water samples from 5 locations in NW Black Sea collected in 1999. In sediment samples, $^{137}$Cs, Pu radionuclides and $^{241}$Am were determined as well as some major and minor elements by X-ray fluorescence. After chemical separation by applying a combined sequential procedure, $^{239+240}$Pu, $^{238}$Pu and $^{241}$Am were measured by high-resolution alpha-spectroscopy. Liquid Scintillation Counting was applied for measuring of $^{241}$Pu. For the surface water samples, $^{137}$Cs concentration varied between (26.3 ± 3.4) mBq/l and (41.2 ± 5.6) mBq/l. The concentration of $^{90}$Sr was of about 11 mBq/l. The concentration of tritium was low, between 24 and 7 T.U. Higher radioactive concentrations in sediment were found in the samples collected from the stations located close to Danube river. For $^{137}$Cs values up to (128 ± 6) Bq/kg were found, in agreement to results for NW Black Sea in previous years. The measured concentrations of $^{239+240}$Pu, $^{238}$Pu radioisotopes are within the range of the values reported in earlier research for the Western Black Sea and Bulgarian Black Sea Coast.

Key words: Black Sea, water, sediment, radioactivity