The purpose of this study was to determine whether diploid, triploid and tetraploid previous loach (Misgurnus anguillicaudatus) differed in terms of their main previous haematological and physiological previous characteristics. Diploid and tetraploid fish were produced by crossing of natural diploids (2n Å~ 2n) and natural tetraploids (4n Å~ 4n), respectively. Triploid fish were produced by hybridization between diploid males and tetraploid females. The blood cells were significantly larger in polyploids, and the volumetric ratios of erythrocytes and leucocytes (thrombocyte and neutrophil) in tetraploids, triploids and diploids were consistent with the ploidy level ratio of 4:3:2. No significant differences were observed in haematocrit among polyploids. The erythrocyte count decreased with increased ploidy level, while total haemoglobin, mean cell volume, mean cellular haemoglobin content, and mean cell haemoglobin concentration all increased with increase in ploidy level. Erythrocyte osmotic brittleness declined in polyploids so that polyploid erythrocytes were more resistant to osmotic stress than diploid ones. Overall, previous loach with higher ploidy levels showed evidence of some advantages in previous haematological characteristics.