Extensively migrating population of neural crest cells, which contributes to many tissues and builds up most of craniofacial vertebrate structures, has a crucial role in embryonic development of vertebrate body. The migratory pathways of neural crest cells are thought to be very conserved throughout the vertebrates and cranial neural crest migration is defined by progression of three migratory streams: trigeminal, hyoid and a common branchial stream. In this diploma thesis, migration of cranial neural crest was analysed using embryos of the Senegal bichir (Polypterus senegalus) and of sterlet (Acipenser ruthenus), which represent two basal-most lineages of extant ray-finned fishes. A combination of several techniques was used in both species in order to study cranial neural crest cells from their sites of origin to post-migratory stages and the pattern of migration was compared and discussed in revealed embryonic context. In the Senegal bichir the hyoid neural crest stream was shown to migrate first and it is also the most abundant; this heterochrony shift is apparently related to formation of external gills, which in bichir are situated on the hyoid arch only. In sterlet, neural crest cells migrate in a classic pattern of three progressive streams but their dynamics and patterning is influenced by prominent yolk tissues and also by a mesenchymatic state of cranial mesoderm. These findings are discussed in a context of our knowledge from other vertebrates as well as in a framework of embryonic and morphogenetic dynamics of different species.