Three groups of streams were selected in the area of the Bohemian Massif: the Berounka river with its source streams; the Vltava river with its tributaries the Malše and the Lužnice; the Labe river with its tributaries the Cidlina, the Bystřice and the Javorka. The lithological and tectonical influences to several parameters of the streams were studied. These parameters include: stream gradient, orientation of the stream and sinuosity of the stream. Data were obtained from digital elevation models, aerial photographs, topographical and geological maps. The longitudinal profiles of the streams (in the combination with geological cross-sections), the SL indexes and the gradient/sinuosity graphs were created on the basis of the obtained data. These tools were used for evaluation of the influence of lithology and the tectonics to the streams. The evolution of the streams and the stream-groups was evaluated and compared as well. A strong influence of lithology on the stream gradient was found on most of the analysed streams. The tectonic situation, on the contrary, had strong influence on the orientation of the streams, especially in the resistant rocks. Also, there were selected areas, where was a higher probability of quaternary vertical movements influencing the streams (mountainous areas of the Novohradské hory and the Šumavské podhůří). The influence of lithology and tectonics to the stream gradient and the stream orientation was proved. The relationship between the stream gradient and the stream sinuosity is not clear. The methods used in this thesis provide just the indication of the vertical tectonic movements, not a real proof. Usage of other methods (eg. various kinds of dating) is necessary for better understanding of the tectonic movements and evolution of the streams.