

Interaction of mining activities and aquatic environment: A review from Greek mine sites.

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In Greece a significant amount of mineral and ore deposits have been recorded accompanied by large industrial interest and a long mining history. Today many active and/or abandoned mine sites are scattered within the country; while mining activities take place in different sites for exploiting various deposits (clay, limestone, slate, gypsum, kaolin, mixed sulphide ores (lead, zinc, olivine, pozzolan, quartz lignite, nickel, magnesite, aluminum, bauxite, gold, marbles etc). The most prominent recent ones are: (i) the lignite exploitation that is extended in the area of Ptolemais (Western Macedonia) and Megalopolis (Central Peloponnese); and (ii) the major bauxite deposits located in central Greece within the Parnassos-Ghiona geotectonic zone and on Euboea Island. In the latter area, significant ores of magnesite were exploited and mixed sulphide ores. Centuries of intensive mining exploitation and metallurgical treatment of lead-silver deposits in Greece, have also resulted in significant abandoned sites, such as the one in Lavrion. Mining activities in Lavrio, were initiated in ancient times and continued until the 1980s, resulting in the production of significant waste stockpiles deposited in the area, crucial for the local water resources. In many mining sites, environmental pressures are also recorded after the mine closure to the aquatic environment, as the surface waters flow through waste dump areas and contaminated soils.

This paper aims to the geospatial visualization of the mining activities in Greece, in connection to their negative (surface- and/or ground-water pollution; overpumping due to extensive dewatering practices) or positive (enhanced groundwater recharge; pit lakes, improvement of water budget in the catchment scale) impacts on local water resources.