

عنوان مقاله:

Assessment of Groundwater Quality for Drinking Purposes Using Water Quality Index (WQI) in Shiraz, Iran (2011 to 2015)

محل انتشار:

فصلنامه بهداشت، ایمنی و محیط زیست، دوره 5، شماره 1 (سال: 1396)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

Drinking water quality monitoring is a prerequisite for macro planning of development programs in metropolitans, improvement in health, and water resources management. Since WQIs (Water Quality Index) are known as comprehensive tools for interpretation of water quality, this study benefitted from this tool to determine the drinking water quality trends in Shiraz, Iran in a five year period from 2011 to 2015 and figure out the factors affecting its changes in this city. For this aim, annual data of 9 water quality parameters including DO, Fecal Coliforms, pH, BOD₅, NO₃, PO₄, temperature deviation, turbidity, and TS were collected for 45 drinking water wells located in 4 zones (Dokuhak, Derak, Sabzpushan, and Chamran) to calculate the WQI. Pairwise comparison of years in terms of WQI values was analyzed statically using post-HOC analysis in Univariable repeated measure test. The results showed that the highest and the lowest water quality level both for annual and long term evaluations belonged to Derak and Chamran zones, respectively. All the studied wells in the five years were classified in good quality group. According to statistically analyze the highest significant change in water quality (p -value < 0.001) was found between the two years 2013 and 2015. In terminal years of the study, the increased concentration of TS and NO₃ caused a partial decrease in water quality in some sources. These significant differences can be considered as a warning for the soon future. Therefore, it makes sense to accelerate the development of sewer systems and manage uncontrolled population growth in this city to prevent further water pollution. Permanent monitoring of water quality using WQIs seems to be essential to figure out a perspective of water quality trends and proper decision-making for developments in urban areas.

کلمات کلیدی:

Water quality, Drinking, NSFQI, Shiraz

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