

**Spatiotemporal variations in the heavy metal pollution index (HPI)  
values southern Iraq.**

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**Abstract**

All previous researches on heavy metals pollution southern Iraq were studied and reviewed to evaluate the heavy metal pollution in water bodies of this region. The review included three major marshes, Shatt Al-Arab and Shatt Al-Basrah rivers, the main drainage system, and the Euphrates in Nassiriyah city. The concentrations of heavy metals through the period 1985 to 2016 changed in both dissolved and particulate phase spatially and temporally, most of these changes weren't significant. The HPI calculations for these researches shows no pollution in the region, except for Shatt Al-Arab in 2007 and 2014 which reached 576.34 and 163.91 respectively, and for the upper and lower part of Shatt Al-Basrah in 2002 which reached 337.46 and 447.09 respectively. Pollution began to appear in 2002 and subsequent years.

**Introduction:**

Trace metals are the sort of pollutants that seriously affect all kinds of life in ecosystem, they could be a source of risk for the ecosystem because of their ability to accumulate in living organisms which may

lead to bio-magnifications, and geo-accumulation, on the other hand their compounds cannot be degrade to a simple harmless components (Duruibe *et.al*, 2007; Woody, 2007; Bharti, 2012).