

Influence of Shatt Al-Arab tide upon the water of Hor Al-Hammar

¹Hussein B. Al Mansory, ²Wessam R. Muttashar, ³Methaq S. Hamadi & ³Mohsen A. Al Khafaji

¹Univ. of Basrah, Collage of Sciences, Geology Dept. Basrah, Iraq.

²Univ. of Basrah, Marine Sciences Center, Marine Geology dept., Iraq. Email: wrmgeo@gmail.com

³The Directorate of Environment in Nassiriya City, Iraq.

ABSTRACT

A hydrochemical study is carried out to estimate the influence Shatt Al-Arab water during tidal periods on Hammar waters quality and determine the mixing range between those two waters.

A hydrochemical study emptying techniques is carried out using samples taken at 8 point from Hor al Hammer and 2 point from Shatt Al-Arab estuary. Studies of the marshes water chemistry indicate that the marshes water consist magnesium chloride and Calcium Chloride type.

One of the most powerful inverse geochemical modeling codes, NETPATH, is used in the present study, that is accounted for hydrochemical and isotopic evolution of natural waters.

The modeling results show that the mixing ratio of Hor Al-Hammar water at points (Sample 5, 7) is quite high or event predominant in the final water, up to 96 percent. Whereas, the mixing ratio at the marshes water in the northeren part (sample 3,1) is ranged between (0.14,0.37) are down. This is again a clear indication of the vital importance of Tide effect from Shatt Al-Arab river which intrusion into marshes, for instance effecting of marashes water quality. Al- Hammar water can be considered chemically as unsuitable for drinking according to (WHO, 1998) and (IRS,1989), and show that all samples are suitable for livestock and poultry requirements.

INTRODUCTION

Iraqi Marshlands which themselves cover an area of 15000-20000 square kilometers (Paul, 2002). These marshlands are located north of Basrah city occupying a triangular area between three cities of Basrah, Misan and Nassiriya and discharging their water to the Arab Gulf via a delta system through the shatt Al-Arab estuary.

Hor Al-Hammar is one of the main marshes of Southern Iraq, its located between Nassirya Governorate from the west side, and Basrah Governorate by south-east side, while the Euphrates river is considered as the Northern Border for the Marsh (Fig. 1).

The Desiccation works of Marshes had been carried out since the last two decades. Hammar marsh has been drained by three operations (Mutasher, 2005): cutting the recharge channels, conversion the water of Euphrates river, and constructing dikes and weirs for dividing the marsh into small areas for quickly evaporating it, where (95) % of water has lost. Hor Al-Hammar is about 90 km of length and its width is between (30-25) km(Paul, 2002). The maximum surface area was about (600 km²) during dry season and formed a permanent lake, but this vast area of the marsh