



الخلاصة :

**STUDY OF EVALUATION THE QUALITY OF SHATT
AL-KUFA RIVER WATER FOR DOMESTIC AND IRRIGATIONAL USES**

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Abstract :

This study is performed to evaluation the quality of raw water of Shatt Al-Kufa river for domestic and irrigational uses . Water samples from five different water supply stations along Shatt Al-Kufa river for eighteenth months from November – 2006 to April – 2008 were collected .Eleven water quality parameters were analyzed including total hardness (TH) , turbidity , temperature , pH , electrical conductivity (Ec) , total dissolved solids (TDS) , total suspended solids (TSS) , sulfates , iron , sodium , and potassium .

Data analysis shows that the water quality parameters of Shatt Al-Kufa river is compatible with the drinking water standards except the turbidity and sulfates which shows increasing levels than the maximum allowable levels for drinking water standards .

For irrigation purpose data results shows that the water of Shatt Al-Kufa river is medium to high salinity and cause saline and alkali damages .

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(Al-Khafaji ,1985)

. (Mohammad ,1988) (Al-Mesri , 1986)

. (Najah et al.,1999) (Jalut ,1998)

(Jalut ,1998)

(Najah et al.,1999)

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EBT Na2EDTA . (

(Turbidity Meter , HACH2100) NTU

(" pH "

(TDS Ec Hanna meter)

(Spactro Photometer) TSS Camlab.)

. (Flam Photometer)

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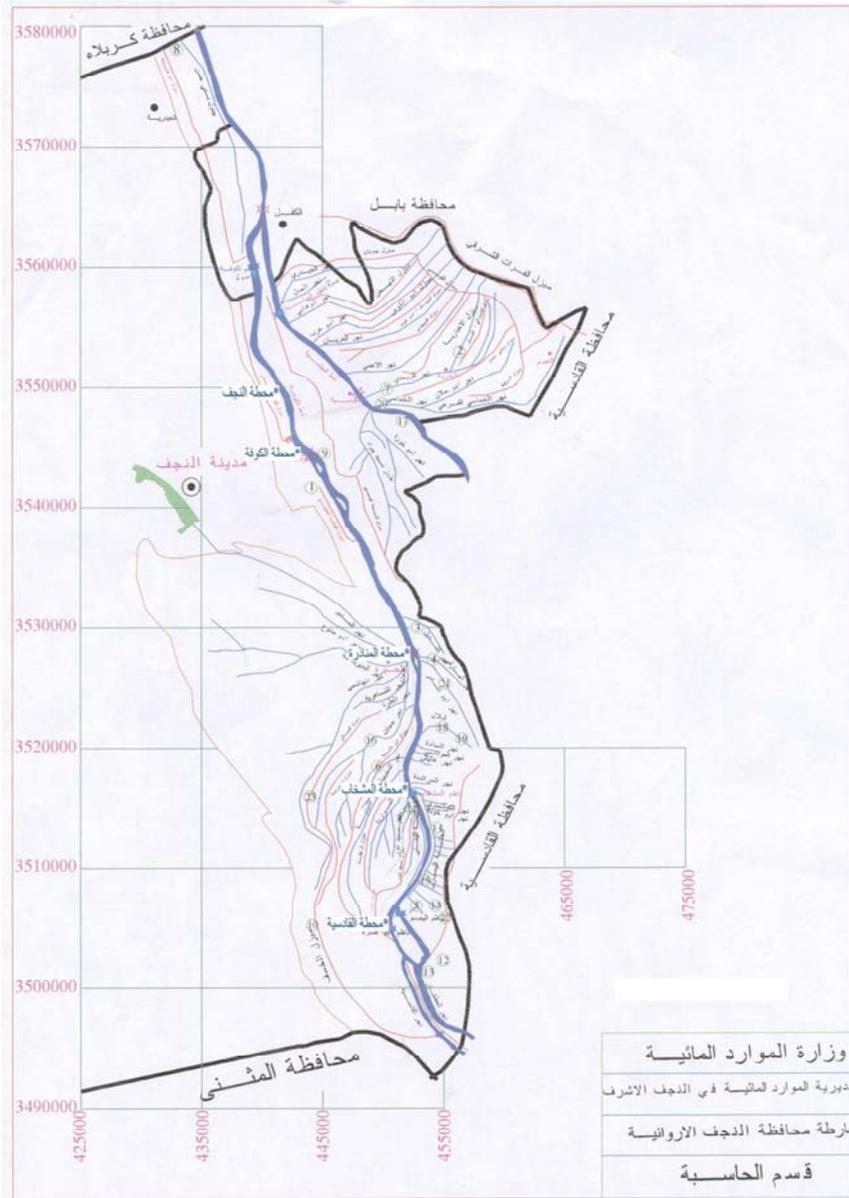
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EPA WHO

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الوحدات	الحد الاعلى المسموح به			المتغير
	EPA	WHO	العراقية	
mg/L	٢٥٠	٥٠٠	٥٠٠	العسرة الكلية TH
NTU	٥	٥	٥	العكارة Turbidity
°C	-	-	-	الحرارة Temp.
	6.5-8.5	6.5-9.5	6.5-8.5	الاس الهيدوجيني pH
µs/cm	-	-	٢٠٠٠	الاصلية الكهربائية Ec

mg/L	٥٠٠	١٢٠٠	١٥٠٠	المواد الذائبة الكلية TDS
mg/L	-	-	-	المواد العالقة الكلية TSS
mg/L	٢٥٠	٢٥٠	٢٥٠	الكبريتات SO4
mg/L	0.3	0.3	0.3	الحديد Fe
mg/L	-	٢٠٠	٢٠٠	الصوديوم Na
mg/L	-	-	١٠	البوتاسيوم k

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الاملاح الذائبة mg/L	الايصالية الكهربائية Ec $\mu\text{s/cm}$	الصف
اقل من ١٦٠	٢٥٠-٠	قليل الملوحة A
٤٨٠-١٦٠	٧٥٠-٢٥٠	متوسط الملوحة B
١٤٤٠-٤٨٠	٢٢٥٠-٧٥٠	شديد الملوحة C
٣٢٠٠-١٤٤٠	٥٠٠٠-٢٢٥٠	شديد الملوحة جدا D

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الاملاح الذائبة mg/L	الايصالية الكهربائية Ec $\mu\text{s/cm}$	الصف
اقل من ٤٨٠	اقل من ٧٥٠	قليل الضرر A
٩٦٠-٤٨٠	١٥٠٠-٧٥٠	متوسط الضرر B
١٩٢٠-٩٦٠	٣٠٠٠-١٥٠٠	شديد الضرر C
اكثر من ١٩٢٠	اكثر من ٣٠٠٠	شديد جدا D

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الاملاح الذائبة mg/L	الصف
٥٠٠-٢٠٠	ماء ممتاز
٢٠٠٠-١٠٠٠	ماء يسبب اضرار ملحية وقلوية
٧٠٠٠-٣٠٠٠	ماء لايمكن استخدامه الامع الغسل والبزل

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(mg/l)

(mg/l)

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(5 NTU)

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() pH (Tebbutt , 1998)

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(pH)

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() TDS

TDS

(mg/l)

(mg/l) (mg/l)

TSS () .

(mg/l)

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(mg/l)

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(mg/l)

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6. Al-Khafaji J. L. A. , " Study on dissolved load in Tigris river within Baghdad" M.Sc. thesis . College of Science , Baghdad University . 1985 .
7. Al-Masri N. A. " Quality of Tigris river water at Baghdad and suitability for drinking purpose " , proceeding of fourth scientific conference , Biological Science Scientific research council , Vol. 5 , Part 2 . 1986 .
8. EPA , United State Environmental Protection Agency , " Primary Drinking Water Regulation " U.S.A. 2008 .
9. Jalut Q. H. " Evaluation of water quality parameters of water supply stations in Babylon Governorate" Journal of Babylon University , Engineering Sciences , Vol.3 , No.5 . 1998 .
10. Mohammad S. R. Khorshid , " Levels of some important elements in drinking water of Baghdad city " Journal of Biological Sciences , Vol. 19 . 1988 .
11. Najah K. Al-Bedeiry and Abdul-Hassan K. Al-Shukur , " Study of qualitative properties of Shatt Al-Hilla river for domestic , industrial and irrigational uses" Journal of Babylon University , Engineering Sciences , Vol. 4 , No. 5 , October , 1999 .
12. Tebbutt T. Y. H. " Principles of water quality control " . Fifth ed. , Pergamon press , 1998 .
13. WHO , World Health Organization " Guidelines for Drinking Water Quality " . First Addendum to Third edition , Vol. 1 , Recommendations , Geneva . 2006 .

