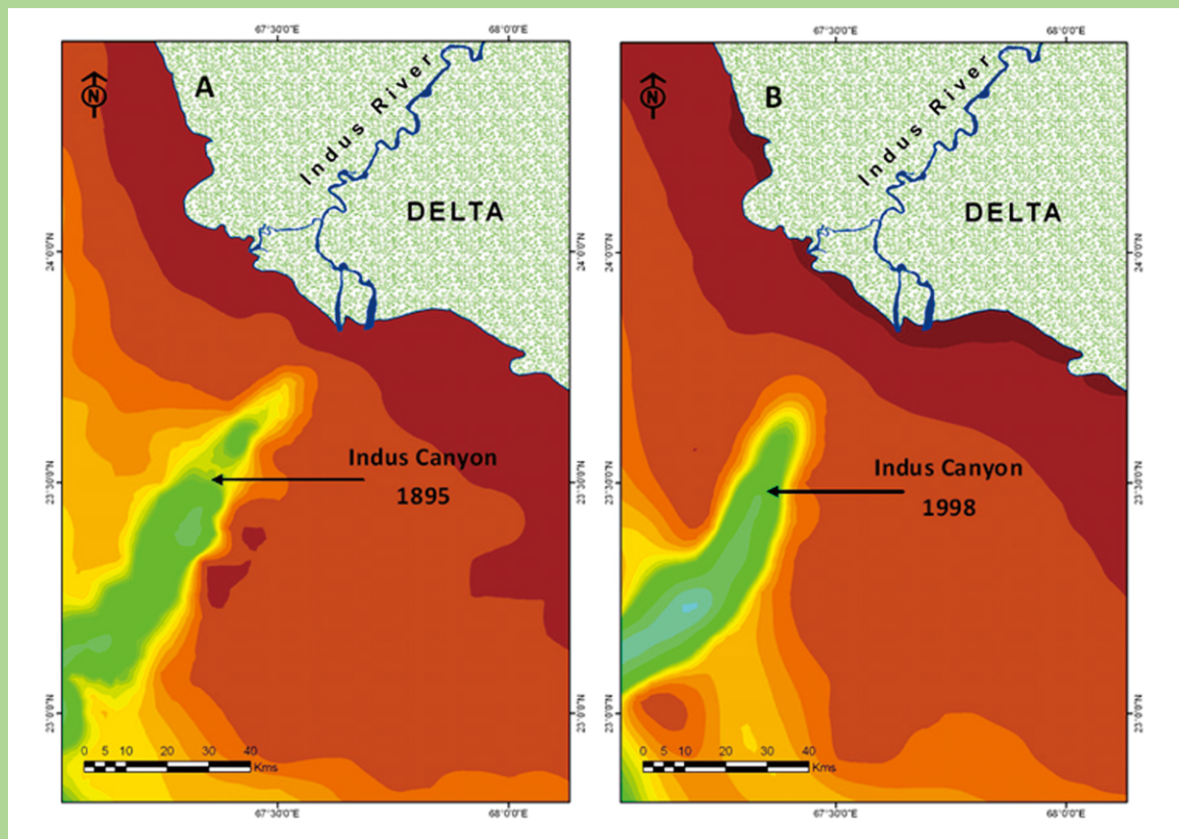




# Journal of Water Resource and Protection

Editors-in-Chief : Jian Shen Ni-Bin Chang



ISSN: 1945-3094



# Journal Editorial Board

ISSN: 1945-3094 (Print) ISSN: 1945-3108 (Online)

<http://www.scirp.org/journal/jwarp>

---

## Editors-in-Chief

<b>Prof. Jian Shen</b>	College of William and Mary, USA
<b>Prof. Ni-Bin Chang</b>	University of Central Florida, USA

## Editorial Board

<b>Dr. Assad Ahmed Al-Thukair</b>	King Fahd University of Petroleum & Minerals, Saudi Arabia
<b>Prof. Sam F. Atkinson</b>	University of North Texas, USA
<b>Dr. Amitava Bandyopadhyay</b>	University of Calcutta, India
<b>Dr. Helen Bridle</b>	Heriot-Watt University, UK
<b>Dr. M. Ekrem Çakmak</b>	Department of Environmental Engineering, Çukurova University, Turkey
<b>Prof. Peter Dillon</b>	Trent University, Canada
<b>Dr. Jane Heyworth</b>	University of Western Australia, Australia
<b>Dr. Madan Kumar Jha</b>	Indian Institute of Technology, India
<b>Dr. Paul Kay</b>	University of Leeds, UK
<b>Prof. Zhaohua Li</b>	Hubei University, China
<b>Dr. Pan Liu</b>	Wuhan University, China
<b>Dr. Damodhara Rao Mailapalli</b>	University of Wisconsin, Madison, USA
<b>Dr. Arash Massoudieh</b>	The Catholic University of America, USA
<b>Prof. Jiho Min</b>	Chonbuk National University, South Korea
<b>Prof. Ping-Feng Pai</b>	National Chi Nan University, Chinese Taipei
<b>Dr. Dhundi Raj Pathak</b>	Osaka Sangyo University, Japan
<b>Prof. Mohamed Nageeb Rashed</b>	Aswan University, Egypt
<b>Dr. Dipankar Saha</b>	Ministry of Water Resources Government of India, India
<b>Prof. Vladimir Soldatov</b>	Institute of Physical Organic Chemistry, Belarus
<b>Prof. Matthias Templ</b>	Vienna University of Technology, Austria
<b>Dr. Stijn W. H. Van Hulle</b>	Ghent University, Belgium
<b>Prof. Aswani K. Volety</b>	Florida Gulf Coast University, USA
<b>Prof. Muqi Xu</b>	Chinese Academy of Sciences, China
<b>Prof. Xiaohua Yang</b>	Beijing Normal University, China
<b>Dr. Y. Jeffrey Yang</b>	US Environmental Protection Agency, USA
<b>Dr. Jinsheng You</b>	University of Nebraska, USA
<b>Prof. Fan Zhang</b>	Chinese Academy of Sciences, China
<b>Prof. Xiying Zhang</b>	Chinese Academy of Sciences, China
<b>Dr. Chunli Zheng</b>	Xi'an Jiaotong University, China

## TABLE OF CONTENTS

**Volume 5    Number 5**

**May 2013**

**Ten Years of Vegetation Change in Northern California Marshlands  
Detected Using Landsat Satellite Image Analysis**

C. Potter.....485

**Influence of Management on the Water Quality and Sediment in Tropical Fish Farm**

L. H. Sipaúba-Tavares, R. N. Millan, A. A. Amaral.....495

**Hydrogeological Study of the Aquifer System in Central Tunisia:  
New System Structuring of Horchane Aquifers**

S. Chaibi, W. Aydi, M. Chalbaoui.....502

**Quantitative Analysis of the Rate of Geochemical Weathering of Sulfur from  
Sedimentary Rocks Using Atmospheric Deposition, Concentration and River Discharge Data**

T. Maruyama, M. Yoshida, K. Takase, H. Takimoto, S. Ishikawa, S. Nagasaka.....511

**Identification of Temporal Shifting Trends of Submarine Indus Canyon, Pakistan**

G. A. Mahar, N. A. Zaigham.....520

**Potential and Use of Nitrate in Agricultural Purposes**

A. Khajuria, S. Kanae.....529

**Carbon Dioxide Emissions from the Tropical Dowleiswaram  
Reservoir on the Godavari River, Southeast of India**

M. H. K. Prasad, V. V. S. S. Sarma, V. V. Sarma, M. S. Krishna, N. P. C. Reddy.....534

**Investigation of a Flow Modulation System for Siphonic Roof Drainage Systems**

D. P. Campbell.....546

**Effect of Heavy Metals Pollution on Protein Biosynthesis in Catfish**

S. A. Habib, A. M. A. S. Samah.....555

---

The figure on the front cover is from the article published in *Journal of Water Resource and Protection*, 2013, Vol. 5, No. 5, pp. 520-528 by Gohar Ali Mahar and Nayyer Alam Zaigham.

# **Journal of Water Resource and Protection (JWARP)**

## **Journal Information**

### **SUBSCRIPTIONS**

The *Journal of Water Resource and Protection* (Online at Scientific Research Publishing, [www.SciRP.org](http://www.SciRP.org)) is published monthly by Scientific Research Publishing, Inc., USA.

#### **Subscription rates:**

Print: \$79 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### **SERVICES**

#### **Advertisements**

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

#### **Reprints (minimum quantity 100 copies)**

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### **COPYRIGHT**

Copyright©2013 Scientific Research Publishing, Inc.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as described below, without the permission in writing of the Publisher.

Copying of articles is not permitted except for personal and internal use, to the extent permitted by national copyright law, or under the terms of a license issued by the national Reproduction Rights Organization.

Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

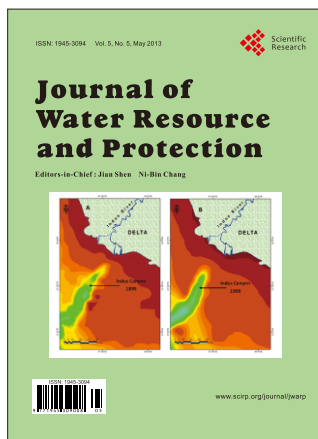
Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

### **PRODUCTION INFORMATION**

For manuscripts that have been accepted for publication, please contact:

E-mail: [jwarp@scirp.org](mailto:jwarp@scirp.org)





# Journal of Water Resource and Protection (JWARP)

<http://www.scirp.org/journal/jwarp>

ISSN:1945-3094 (Print), 1945-3108 (Online)

JWARP is an international refereed journal dedicated to the latest advancement of water resource and protection. The goal of this journal is to keep a record of the state-of-the-art research and promote the research work.

## Editors-in-Chief

Prof. Jian Shen  
Prof. Ni-Bin Chang

College of William and Mary, USA  
University of Central Florida, USA

## Editorial Board

Dr. Assad Ahmed Al-Thukair  
Prof. Sam F. Atkinson  
Dr. Amitava Bandyopadhyay  
Dr. Helen Bridle  
Dr. M. Ekrem Çakmak

Prof. Peter Dillon  
Dr. Jane Heyworth  
Dr. Madan Kumar Jha  
Dr. Paul Kay

Prof. Zhaohua Li  
Dr. Pan Liu  
Dr. Damodhara Rao Mailapalli  
Dr. Arash Massoudieh  
Prof. Jiho Min  
Prof. Ping-Feng Pai  
Dr. Dhundi Raj Pathak  
Prof. Mohamed Nageeb Rashed  
Dr. Dipankar Saha  
Prof. Vladimir Soldatov

Prof. Matthias Templ  
Dr. Stijn W. H. Van Hulle  
Prof. Aswani K. Volety  
Prof. Muqi Xu  
Prof. Xiaohua Yang  
Dr. Y. Jeffrey Yang  
Dr. Jinsheng You  
Prof. Fan Zhang  
Prof. Xiying Zhang  
Dr. Chunli Zheng

## Subject Coverage

This journal invites original research and review papers that address the following issues in water resource and protection. Topics of interest include, but are not limited to:

- Agricultural Water Management
- Ecological Restoration and Receiving Water Impacts
- Economic, Sociological, and Environmental Considerations of Water Resources
- Fresh Water Security
- Ground Water Monitoring & Modeling
- Industrial Ecology and Water Sustainability
- Innovative Technologies and Engineering Solutions for Water Resources Protection
- Marine and Freshwater Conservation
- Monitoring, Modeling and Prediction of Water Pollution
- Remote Sensing for Water Resources Management
- Sea Water Utilization
- Stormwater Management and Low Impact Development
- Surface Runoff and Ground Water Pollution Control
- Urban Water
- Water and Environment
- Water Infrastructure and Life Cycle Assessment
- Water Policy and Governance
- Water Purification and Wastewater Treatment
- Water Quality Management and Ecosystems Modeling
- Water Quality Monitoring and Assessment
- Water Quality, Pollutant Exposure and Health
- Water Research & Education
- Water Resources and Climatic Change
- Water Resources Protection and Management
- Water Resources Restoration and Sustainable Use

We are also interested in short papers (letters) that clearly address a specific problem, and short survey or position papers that sketch the results or problems on a specific topic. Authors of selected short papers would be invited to write a regular paper on the same topic for future issues of the **JWARP**.

## Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

## Website and E-Mail

<http://www.scirp.org/journal/jwarp>

Email: [jwarp@scirp.org](mailto:jwarp@scirp.org)

## What is SCIRP?

Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science, by delivering superior scientific publications and scientific information solution provider that enable advancement in scientific research.

## What is Open Access?

All original research papers published by SCIRP are made freely and permanently accessible online immediately upon publication. To be able to provide open access journals, SCIRP defrays operation costs from authors and subscription charges only for its printed version. Open access publishing allows an immediate, world-wide, barrier-free, open access to the full text of research papers, which is in the best interests of the scientific community.

- High visibility for maximum global exposure with open access publishing model
- Rigorous peer review of research papers
- Prompt faster publication with less cost
- Guaranteed targeted, multidisciplinary audience



**Website: <http://www.scirp.org>**  
**Subscription: [sub@scirp.org](mailto:sub@scirp.org)**  
**Advertisement: [service@scirp.org](mailto:service@scirp.org)**