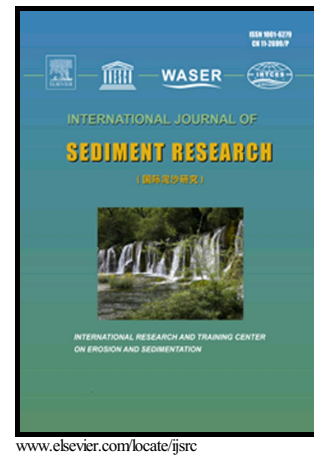


Author's Accepted Manuscript

Assessment of heavy metal pollution from the sediment of Tupilipalem Coast, southeast coast of India

Sreenivasulu Ganugapenta, Jayaraju Nadimikeri, Sundara Raja Reddy Balam Chinnapolla, Lakshmanna Ballari, Rajasekhar Madiga, Nirmala K, Lakshmi Prasad Tella



PII: S1001-6279(16)30091-9
DOI: <https://doi.org/10.1016/j.ijsrc.2018.02.004>
Reference: IJSRC165

To appear in: *International Journal of Sediment Research*

Received date: 16 November 2016
Revised date: 30 November 2017
Accepted date: 14 February 2018

Cite this article as: Sreenivasulu Ganugapenta, Jayaraju Nadimikeri, Sundara Raja Reddy Balam Chinnapolla, Lakshmanna Ballari, Rajasekhar Madiga, Nirmala K and Lakshmi Prasad Tella, Assessment of heavy metal pollution from the sediment of Tupilipalem Coast, southeast coast of India, *International Journal of Sediment Research*, <https://doi.org/10.1016/j.ijsrc.2018.02.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Assessment of heavy metal pollution from the sediment of Tupilipalem Coast, southeast coast of India

Sreenivasulu Ganugapenta^a, Jayaraju Nadimikeri^{a,*}, Sundara Raja Reddy Balam
Chinnapolla^b, Lakshman Ballari^a, Rajasekhar Madiga^a, Nirmala K^c,
Lakshmi Prasad Tella^d

^a Department of Geology, Yogi Vemana University, Kadapa, Andhra Pradesh, India.

^b Department of Geology, Sri Venkateswara University, Tirupati, Andhra Pradesh, India.

^c Institute of Ocean Management, Anna University, Chennai, Tamil Nadu, India.

^d Department of Earth Sciences, Yogi Vemana University, Kadapa, Andhra Pradesh, India

*Corresponding Author, Email: nadimikeri@gmail.com

Abstract

Sediment from twelve stations was sampled from the Tupilipalem Coast, southeast coast of India, and the presence of a set of heavy metals was established including iron (Fe), manganese (Mn), chromium (Cr), copper (Cu), nickel (Ni), lead (Pb), zinc (Zn) and cadmium (Cd). The heavy metals were assessed by factor analysis, the results of which showed positive and/or negative correlations among Fe, Mn, Cr, Cu, Ni, Pb, Zn, and Cd. Factor analysis also indicated that heavy metals in the sediments of the study area have different natural and anthropogenic sources. Similarly, a sediment pollution assessment was done using the Geoaccumulation Index (I_{geo}), Enrichment Factor (EF), and Pollution Load Index (PLI). The Geoaccumulation Index indicated that the surface sediment of the Tupilipalem Coast was extremely contaminated with Fe, Mn, Cr, Cu, Ni, Pb, and Zn. The calculation of enrichment factors showed a significant enrichment with respect to Pb, Zn, and Cd and a moderate enrichment with Cr, Cu, and Ni. The falling trend of average contents' enrichment factors is Cd > Pb > Zn > Cu > Cr > Ni > Mn > Fe. The PLI values of the Cd show higher (>1) values due to the influence of distinct external sources like agricultural runoff, industrial activities, and other anthropogenic inputs. Ninety two percent of heavy metals under study

Download English Version:

<https://daneshyari.com/en/article/8959589>

Download Persian Version:

<https://daneshyari.com/article/8959589>

[Daneshyari.com](https://daneshyari.com)