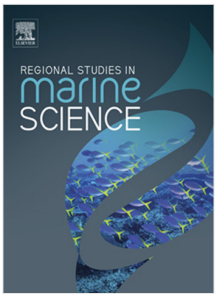
Accepted Manuscript



Spatial and multi-layered assessment of heavy metals in the sand of Cox's-Bazar beach of Bangladesh

Rahat Khan, Mohammad Abdur Rouf, Sopan Das, Umma Tamim, Kamrun Naher, Jiban Podder, Syed Mohammod Hossain

PII: S2352-4855(17)30136-6
DOI: http://dx.doi.org/10.1016/j.rsma.2017.09.003
Reference: RSMA 288

To appear in: *Regional Studies in Marine Science*

Received date : 18 April 2017
Revised date : 6 August 2017
Accepted date : 7 September 2017

Please cite this article as: Khan R., Rouf M.A., Das S., Tamim U., Naher K., Podder J., Hossain S.M., Spatial and multi-layered assessment of heavy metals in the sand of Cox's-Bazar beach of Bangladesh. *Regional Studies in Marine Science* (2017), http://dx.doi.org/10.1016/j.rsma.2017.09.003

Spatial and multi-layered assessment of heavy metals in the sand of Cox's-Bazar beach of Bangladesh

Rahat Khan[a,*], Mohammad Abdur Rouf [a,b], Sopan Das[a], Umma Tamim[a], Kamrun Naher[a], Jiban Podder[b] and Syed Mohammod Hossain[a]

[a]Institute of Nuclear Science & Technology, Bangladesh Atomic Energy Commission, Savar, Dhaka-1349, Bangladesh.

[b]Department of Physics, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh.

(*Corresponding author: khan-rahat@baec.gov.bd; rahatkhan.baec@gmail.com)

Abstract

This study presents the elemental abundances of beach sands collected from Cox's Bazar, Bangladesh for the purpose of understanding the spatial and layer-wise distribution of heavy elements and their provenance. Sand samples were collected from six different stations and from each sampling stations five samples were collected according to the sampling depth. Thus, in thirty sand samples, nineteen elements (Na, K, Sc, Cr, Fe, Co, Zn, As, La, Ce, Sm, Eu, Gd, Tb, Yb, Hf, Ta, Th and U) were determined by TRIGA Mark II research reactor based instrumental neutron activation analysis. Enrichment of some heavy metals, such as Fe, La, Ce, Sm, Hf, Ta, Th and U are due to the presence of some heavy minerals (i.e., monazite, magnetite, ilmenite). Study of environmental indices and the probable sources of anthropogenic origins indicate that the impact of anthropogenic heavy metals is negligible in our study area.