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[JWARP](#) > Vol.2 No.1, January 2010



Studying Heavy Metals in Sediments Layers along Selected Sites on the Lebanese Coast

PDF (Size: 1149KB) PP. 48-60 DOI: 10.4236/jwarp.2010.21006

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ABSTRACT

Ensuring the environmental protection of the Lebanese coast requires a continues monitoring system. For this purpose, four heavy metals (Fe, Mn, Cu and Pb in the marine sediments along the Lebanese coast were selected for analysis Sampling was carried out from two sites: Beirut and Batroun. Thus, 1g of dried sample is used for digestion by wet mineralization in order to determine the concentration of the four heavy metals by atomic absorption spectrometry. The results showed that Beirut area is polluted, by Fe and Mn as well as the station Bat 2 of Batroun. For Cu and Pb, Batroun region is more polluted in the superficial layers. The analysis also showed significant difference between the sites except for Cu. A difference between depths and between particles size fractions are observed for all the parameters studied. There is no a significant difference in layer sequence except for the Pb, and neither between the repetitions of the same sample. Results showed that the values of the four metals studied do not exceed the maximum limits at both sites, but they showed increase in comparison with the analyses obtained before July 2006 conflict, which was caused by the release of large quantity of fuel-oil from Jiyeh Power Station.

KEYWORDS

Pollution, Sediments, Heavy metals, Coast, Lebanon

Cite this paper

N. NASSIF and Z. SAADE, "Studying Heavy Metals in Sediments Layers along Selected Sites on the Lebanese Coast," *Journal of Water Resource and Protection*, Vol. 2 No. 1, 2010, pp. 48-60. doi: 10.4236/jwarp.2010.21006.

References

- [1] R. Steiner, " Lebanon oil spill rapid assessment and response mission," pp. 1– 30, 2006.
- [2] E. Laurif, " Regional environmental assessment, report on the coastal zone of Lebanon," Government of Lebanon, Council for Development and Reconstruction, pp. 46– 56, 1997.
- [3] R. Kantin and G. et Pergent, " Gestion des écosystemes littoraux méditerranées," IFREMER et Université de CORSE, pp. 15– 45, 2007.
- [4] S. Casas, " Modélisation de la bioaccumulation de métaux traces (Hg, Cd, Pb, Cu et Zn) chez la moule Mytilus Galloprovincialis, en milieu méditerranéen," Sud Toulon VAR. France, pp. 10– 19, 2005.
- [5] K. Nakhle and Le Mercure, " le Cadmium et le Plomb dans les eaux littorales libanaises: apports et suivi au moyen de bioindicateurs quantitatifs (éponges, bivalves, et gastropodes)," Paris 7. France, pp. 7– 14, 32– 41, 99– 101, 2003.
- [6] N. Nassif, " Pollutions chimiques en milieu marin : Essai de modélisation et approche réglementaire," Edition: GG/F. Janvier, Institut National Agronomique. Paris- Grignon. Paris-France. ISBN: 2– 35040– 000– X, pp. 9– 42, 81, 203– 210, annexes 13, 14, 2006.
- [7] J. C. Amiard, " Les problèmes liés à l' échantillonnage et à la détection des éléments traces en écotoxicologie," Vol. 1, pp. 172– 195, 1994.

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- [8] M. Castrec-Rouelle, N. Nassif, and A. M. et De- Kersabiec, " Prélèvements préparation et traitement d'échantillons environnementaux: Approches statisti- ques," Dossier Environnement, Vol. 32, pp. 23– 28, 2003.
- [9] C. Biney, A. T. Amuzu, D. Calamari, N. Kaba, I. L. Mbome, H. Naeve, O. Ochumba, O. Osibanjo, V. Radegonde, and M. A. H. et Saad, " Etude des métaux lourds," Revue de la pollution dans l'environnement aquatique africain, FAO, Vol. 25, pp. 1– 6, 1994.
- [10] B. Boutier, D. Claisse, D. Auger, E. Rozuel, J. Breteau- deau, and I. Truquet, " Surveillance du milieu marin. Les métaux dans les sédiments du Golfe de Gascogne," RNO (IFREMER), pp. 17– 34, 2005.
- [11] E. Bastarache, " Toxicologie, céramique, verrerie et métallurgie," Smart. Conseil, 2006.
- [12] PNUE, " Meilleurs méthodes de gestion pour les sources agricoles non ponctuelles de pollution," Rapport techni- que du PEC, Programme pour l'environnement des caraibes, pp. 150, 1998.
- [13] R. Mebazaa, " Détermination de la taille de l'échantillon des sédiments marins par étude de la variance," L'Institut National Agronomique Paris-Grignon - Centre National des Sciences Marines de Jounieh. Agence Universitaire de la Francophonie (AUF). Mémoire de Dipl?me d'études approfondies, Contr?le et gestion de la qualité, pp. 12– 22, 2004.
- [14] PNUE, " Etat du milieu marin et littoral de la région méditerranéene," MAP Technical Reports-Series, pp. 3– 11, 29– 48, 1996.
- [15] UNEP, " Etat de l'environnement et politiques suivies de 1972 A 2002, la mer et les c?tes. GEO 3," Le passé, le présent et les perspectives d'avenir, pp. 180– 209, 2002.
- [16] B. Boutier and D. et Claisse, " Surveillance du milieu marin. Les contaminants chimiques dans les sédiments du littoral méditerranéen," RNO (IFREMER), pp. 9– 52, 1998.