Journal of Environmental Hydrology
ISSN 1058-3912
Electronic Journal of the International Association for Environmental Hydrology

JEH Volume 14 (2006), Paper 26 Posted December 23, 2006

BASELINE METALS CONCENTRATIONS IN WATERS FROM A TROPICAL BINATIONAL RIVER: THE CATATUMBO RIVER, VENEZUELA

Hilda Ledo
Nancy Angulo
Elizabeth Guti閞rez
Johan Mesa

Laboratorio de Qu鞩ica Ambiental, Facultad Experimental de Ciencias, Universidad del Zulia, Maracaibo, Estado Zulia. Venezuela

ABSTRACT
The Catatumbo river is a binational basin shared by both Venezuela and Colombia approximately 30% and 70%, respectively. It is one of the main contributors of nutrients, organic matter and metals to Lake Maracaibo, due to the natural runoff of the river basin, and to domestic, industrial, agricultural and oil activities in the basin. This work is the first study of metals in waters of the Catatumbo River, including the zones within Venezuelan and Colombian territory, and the metal load to Lake Maracaibo. Metal concentrations in the Catatumbo river water were in the following order: Na > Al > Mg > Fe > K > Ca > Cu > Zn = Pb > Mn > Cr (30.582, 9.386, 8.313, 5.137, 4.617, 1.863, 0.192, 0.157, 0.157, 0.141, and 0.0005 mg/l respectively). With the exception of Cr, these values exceed reported values by other authors for natural waters. The molar ratio metal/phosphorus found in river waters was high, suggesting complex formation. The annual metal load from the Catatumbo river to Lake Maracaibo is the following: Na > Mg> K > Ca > Al > Fe > Pb > Cu > Zn > Mn > Cr (966.74, 219.60, 49.80, 18.12, 7.56, 5.27, 0.95, 0.82, 0.57, 0.33, and 0.0015 x 10^4 kg/yr respectively). These results indicate that the Catatumbo River is an important contributor of metals to Lake Maracaibo.

Reference: *Ledo, H., N. Angulo, E. Guti閞rez, and J. Mesa. 2006. Baseline metals concentrations in waters from a tropical binational river: The Catatumbo river, Venezuela. Journal of Environmental Hydrology, Vol. 14, Paper 26.*

CONTACT:
Hilda Ledo
Laboratorio de Qu鞩ica Ambiental, Facultad Experimental de Ciencias
Universidad del Zulia, M骳ulo 2. Maracaibo
Estado Zulia
Venezuela

E-mail: *hild@cantv.net*

Return to JEH 2006 Papers

Return to HydroWeb Homepage