



Original Contribution

Mercury in Populations of River Dolphins of the Amazon and Orinoco Basins

F. Mosquera-Guerra,^{1,2} F. Trujillo,¹ D. Parks,³ M. Oliveira-da-Costa,⁴
P. A. Van Damme,⁵ A. Echeverría,⁵ N. Franco,¹ J. D. Carvajal-Castro,⁶
H. Mantilla-Meluk,⁷ M. Marmontel,⁸ and D. Armenteras-Pascual²

¹Fundación Omacha, Calle 84 No. 21-64, Barrio El Polo, BogotáDC, Colombia

²Grupo de Ecología del Paisaje y Modelación de Ecosistemas-ECOLMOD, Departamento de Biología Facultad de Ciencias, Universidad Nacional de Colombia, Cra 30 No. 45-03, BogotáDC, Colombia

³Whitley Fund for Nature, 110 Princedale Road I, London W11 4NH, UK

⁴WWF-Brasil, CLS 114, Bloco D, Loja 35, Brasília CEP 70.377-540, Brazil

⁵Faunagua, final Av. Max Fernández final s/n – Plazuela Chillijchi (Arocagua Norte) – Sacaba, Cochabamba, Bolivia

⁶Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, BogotáDC, Colombia

⁷Programa de Biología, Universidad del Quindío, Carrera 15 No. 12 Norte, Armenia, Quindío, Colombia

⁸Instituto Mamirauá de Desenvolvimento Sustentável, Estrada do Bexiga, 2.584 Bairro Fonte Boa, Cx. Postal 38, Tapajós 69.553-225, Brazil

Abstract: In the Amazon and Orinoco basins, mercury has been released from artisanal and industrial gold mining since the Colonial time, as well as a result of deforestation and burning of primary forest, that release natural deposits of methyl mercury, affecting the local aquatic vertebrate fauna. This study reports the presence of mercury in river dolphins' genera *Inia* and *Sotalia*. Mercury concentrations were analysed in muscle tissue samples collected from 46 individuals at the Arauca and Orinoco Rivers (Colombia), the Amazon River (Colombia), a tributary of the Itenez River (Bolivia) and from the Tapajos River (Brazil). Ranges of total mercury (Hg) concentration in muscle tissue of the four different taxa sampled were: *I. geoffrensis* 0.003–3.99 mg kg⁻¹ ww (n = 21, M_e = 0.4), *I. g. geoffrensis* 0.1–2.6 mg kg⁻¹ ww (n = 15, M_e = 0.55), *I. boliviensis* 0.03–0.4 mg kg⁻¹ ww (n = 8, M_e = 0.1) and *S. fluviatilis* 0.1–0.87 mg kg⁻¹ ww (n = 2, M_e = 0.5). The highest Hg concentration in our study was obtained at the Orinoco basin, recorded from a juvenile male of *I. g. humboldtiana* (3.99 mg kg⁻¹ ww). At the Amazon basin, higher concentrations of mercury were recorded in the Tapajos River (Brazil) from an adult male of *I. g. geoffrensis* (2.6 mg kg⁻¹ ww) and the Amazon River from an adult female of *S. fluviatilis* (0.87 mg kg⁻¹ ww). Our data support the presence of total Hg in river dolphins distributed across the evaluated basins, evidencing the role of these cetaceans as sentinel species and bioindicators of the presence of this heavy metal in natural aquatic environments.

Keywords: Amazon, Bioindication, Gold mining, Mercury contamination, Orinoco, River dolphins

INTRODUCTION

The Amazon and Orinoco basins are home to the highest diversity of river dolphins on the planet (Mosquera-Guerra

Correspondence to: F. Mosquera-Guerra, e-mail: federico.mosqueraguerra@gmail.com