

Abstract

Providing a "Quick Wash" to Oil Contaminated Wildlife Using Magnetic Particle Technology

John D. Orbell¹, Stephen W. Bigger¹, Lawrence N. Ngeh¹, Kasup Munaweera¹, Peter Dann², Rosalind Jessop², and Margaret Healy²

¹School of Engineering & Science/Institute for Sustainability & Innovation, Victoria University, PO Box 14428, Melbourne, Victoria 8001, Australia; ²Research Department, Phillip Island Nature Park

The application of magnetic particle technology (MPT) to the removal of oil contamination from plumage and fur ("magnetic cleansing") offers a number of advantages over conventional detergent-based methods [1, 2]. One such advantage is the possibility of providing a "quick wash" to the animal upon first encounter. This could be particularly advantageous when the contaminant is toxic and/or corrosive and where there is a delay in transporting the victim to a treatment centre. The method could also be useful as part of a stabilization protocol when large numbers of affected animals are awaiting treatment. This presentation describes the development of the most appropriate field equipment, especially the magnetic harvesting device, which would optimize the portability and utility of this method. Simulated "quick wash" field trials have been conducted for the removal of a number of contaminants, including diesel and bunker oil, from the plumage of Little Penguin (*Eudyptula minor*) carcasses as whole-bird models. These experiments are described in terms of the efficacy of removal, the time required to perform the procedure, the costs involved and general logistics.

1. J.D. Orbell, E.K. Tan, M. Coutts, S.W. Bigger and L.N. Ngeh, "Cleansing Oiled Feathers – Magnetically", *Marine Pollution Bull.*, 1999, 38(3), 219-221.

2. J.D. Orbell, L.N. Ngeh, S. W. Bigger, M. Zabinskas, M. Zheng, M. Healy, R. Jessop and P. Dann, "Whole-Bird Models for the Magnetic Cleansing of Oiled Feathers", *Marine Pollution Bull.* 2004, 48, 336-340.