

## Decision support system development for adaptive management of desalination plant outfalls in marine ecosystems

Jose M. Hernandez Torres<sup>a\*</sup>, Aina Hernandez Mascarell<sup>a</sup>, Marta Navarro Hernandez<sup>a</sup>, Jose M. Cortes<sup>b</sup>, Miguel Martin Monerris<sup>c</sup>, Rafael Molina<sup>d</sup>

<sup>a</sup>Tecnoma S.A./Antiga senda de Senent, 11-33<sup>o</sup>, 46023. Valencia, Spain

Tel. +34 (96) 337 92 20; Fax +34 (96) 337 14 29; email: jhernandez@tecnoma.es

<sup>b</sup>SIDMAR Bernhard Pack S.L., Avda. País Valencià, 22, E-03720 Benissa (Alicante), Spain

Tel. +34 (96) 5731073; Fax +34 (96) 5731106; email: jcortes@sidmar.es

<sup>c</sup>Department of Hydraulic and Environmental Engineering, Polytechnic University of Valencia, Camino de Vera, s/n, 46022 Valencia, Spain

Tel. +34 (96) 387 70 07; email: mmartin@hma.upv.es

<sup>d</sup>Typsa, Gomera 9, San Sebastián de los Reyes, 28700 Madrid. Spain

Tel. +34 (91) 722 73 00; Fax +34 (91) 6517588; email: rmolina@typsa.es

Received 5 May 2009; Accepted in revised form 1 May 2010

---

### ABSTRACT

ASDECO is a R&D project whose main objective is to design a system that allows for the implementation of Adaptive Management for brine discharges from desalination plants into the sea. The project has two phases: to design and to adapt the instrumental system to the characteristics of the brine plume, achieving the required reliability and precision. An information and forecast system has also been constructed to compile and validate the data, as well as to activate the alarm protocols required for the Environmental Impact Declarations. The application of forecast systems will provide the outfall management with the necessary flexibility to adapt to the favourable conditions of the marine environment, maximizing dilution and minimizing brine impact. The system is currently being implemented and tested in the Alicante Channel desalination plant (Alicante, Spain).

*Keywords:* ASDECO; Brine; Discharge; Plume; Dispersion; Forecast; Management; Desalination

---

\* Corresponding author.