



## Algal blooms: an emerging threat to seawater reverse osmosis desalination

L.O. Villacorte<sup>a,b,\*</sup>, S.A.A. Tabatabai<sup>a</sup>, N. Dhakal<sup>a,b</sup>, G. Amy<sup>c,d</sup>, J.C. Schippers<sup>a</sup>,  
M.D. Kennedy<sup>a,c</sup>

<sup>a</sup>UNESCO-IHE Institute for Water Education, Westvest 7, AX Delft 2611, The Netherlands, Tel. +31 152151788;

email: [l.villacorte@unesco-ihe.org](mailto:l.villacorte@unesco-ihe.org) (L.O. Villacorte)

<sup>b</sup>Wetsus Center of Excellence for Sustainable Water Technology, Agora 1, CJ Leeuwarden 8934, The Netherlands

<sup>c</sup>Department of Civil Engineering and Geosciences, Delft University of Technology, Stevinweg 1, CN Delft 2628, The Netherlands

<sup>d</sup>Water Desalination and Reuse Center, King Abdullah University of Science and Technology, Thuwal 4700, Saudi Arabia

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### ABSTRACT

Seawater reverse osmosis (SWRO) desalination technology has been rapidly growing in terms of installed capacity and global application over the last decade. An emerging threat to SWRO application is the seasonal proliferation of microscopic algae in seawater known as algal blooms. Such blooms have caused operational problems in SWRO plants due to clogging and poor effluent quality of the pre-treatment system which eventually forced the shutdown of various desalination plants to avoid irreversible fouling of downstream SWRO membranes. This article summarizes the current state of SWRO technology and the emerging threat of algal blooms to its application. It also highlights the importance of studying the algal bloom phenomena in the perspective of seawater desalination, so proper mitigation and preventive strategies can be developed in the near future.

*Keywords:* Seawater reverse osmosis; Algal blooms; Pre-treatment; Membrane fouling

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\*Corresponding author.

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