

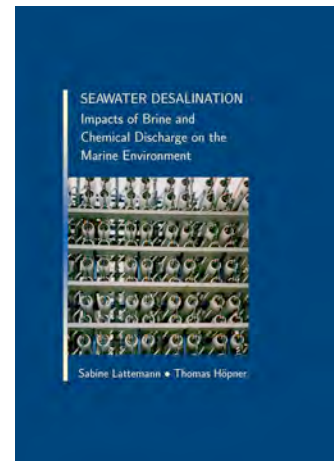
SEAWATER DESALINATION

Impacts of Brine and Chemical Discharge on the Marine Environment

by Sabine Lattemann and Thomas Höpner

ISBN 0-86689-062-9

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Population growth, ongoing industrialization, land irrigation and higher living standards increase the demand for drinking water. Ground waters are already excessively exploited and at risk of salt water intrusion in coastal areas, while surface waters are scarce or polluted. As good quality raw water becomes less available, water must be purified and augmented by seawater desalination. An introduction to the two main desalting processes is given in this book with an emphasis on vulnerable points in process design and choice of materials. To protect reverse osmosis and multi-stage flash plants from certain types of seawater constituents, chemical pretreatment is required, while cleaning chemicals are used to restore the plants' efficiency. Both procedures are described with regards to the type of foulant. Classification into different groups of chemicals is made, and single chemicals and underlying mechanisms that make them effective additives are described. This book appeals for environmental assessments of new desalination plants and it is the first which provides data about the chemical discharges into the sea and their marine ecological effects.

Special attention is given to the Arabian Gulf where 50% of worldwide seawater plants operate. This approach takes the Gulf's high installed capacity into account and relates it to the surrounding Gulf ecosystem. Maps of the region are included and an outlook for the future presented.

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