

# GUIDELINES of LAKE MANAGEMENT

Volume 6

## Management of Inland Saline Waters

W. D. Williams



International Lake Environment Committee  
United Nations Environment Programme

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## FOREWORD

Almost a billion people, including some of the most disadvantaged of the human race, live in dryland regions of the world - that part of our planet receiving on average less than about 500 mm of rain annually. Drylands cover almost a third of the land area of the planet and include substantial regions of all continents, including all of Antarctica. Characteristic features of the natural environment and landscape are salt lakes: temporary or permanent bodies of salt or saline water. They include the largest lake in the world (the Caspian Sea), the lowest (the Dead Sea, over 400 m below ocean level), and some of the highest (those on the Altiplano of South America and on the Tibetan Plateau). Indeed, in both number and volume, salt lakes are a very considerable fraction of the world's inland resources of water. In fact, if one includes the Caspian Sea, salt lakes hold almost as much water as do freshwater lakes; even without considering the Caspian Sea, they are almost as numerous in number.

We typically cannot use water directly from salt lakes for domestic, industrial and agricultural purposes. However, these lakes and other smaller ones have many more direct and important economic uses. They include being a source of salt and other minerals, and a source of plant and animal products (including fish in lakes of moderate salinity). Non-economic values also are important, as many salt lakes are frequently of cultural significance, of high aesthetic appeal, attractive to tourists and of great interest to scientists. All but the most saline of these lakes have a diverse flora and fauna.

Notwithstanding their many uses and values, their widespread global occurrence, and their number and the volume of water they hold, salt lakes are under threat almost wherever they exist. They have been, and are being, drained, polluted, significantly altered and over-exploited. We have already lost a significant part of our natural environment and in grave danger of losing more. We have particularly impoverished, and will further impoverish, those who live in drylands areas.

Why has this happened and why do we allow it to continue? There are many explanations for this situation. One reason is certainly *ignorance*; we have largely focused our attention on freshwater resources, and have not fully appreciated the many values and attributes of salt lakes. Our management of salt lakes, consequently, has been both inadequate and inept to date.

It is to address this situation that this present book has been prepared. It explicitly points to the global importance and widespread occurrence of salt lakes, it identifies their many uses and values, it summarizes what we know about them as far as their major physico-chemical and biological features are concerned, and it discusses seven important case studies. In doing this, it lays the foundations of effective management; namely recognition and understanding of these important natural resources.

The book is a significant addition to the ILEC series on Guidelines of Lake Management, and is recommended to all those interested in salt lakes, be they conservationists, scientists, or managers. It is the hope that it will prove to be informative, useful, and, above all, contribute to our management of salt lakes. The author, Emeritus Professor W.D. Williams, a vice-chairman of the ILEC scientific committee, brings to bear a lifetime's exploration of salt lakes in developing this book, and has our thanks in completing this volume.

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