

Preface

Greece is a small mountainous country with a remarkably varied relief, complex geological structure, a rich palette of microclimates, and diverse aquatic ecosystems hosting particularly rich biodiversity.

There is an erroneous perception that Greece is a dry country. This perception is derived from the fact that large areas of East and Southeastern Greece, which are popular tourist destinations, face water scarcity. In reality, the Greek Peninsula contributes over the double of river runoff in the European Mediterranean Sea (16%) compared to the surface area of the country (7%). The country is characterised by numerous, diverse, and highly fragmented small to medium-sized mountainous rivers and streams, running through steep narrow valleys. Large lowland areas that are diffused within prevailing rift valleys are drained by medium and large perennial rivers, which frequently form extensive flood and deltaic plains. Semi-arid landscapes are marked by intermittent to episodic streams. When considering this highly variable landscape, the uniqueness and diversity of aquatic flora and fauna is not surprising.

Water is according to Thales of Miletus (c. 624 – c. 546 BC) the originating principle of nature. Ancient Greeks defied rivers and created myths which conceal real physical-geological events. Since the second millennium BC, hydraulic and land reclamation works were conducted for water supply and protection against droughts and floods. Nowadays, to address the challenges of the unevenly spatial and temporal distribution of water resources, water managers diverted rivers and constructed numerous dams. Thus, the vast majority of medium and large rivers of the country are fragmented. The main pressures affecting running waters in Greece are hydromorphological modifications, agro-industrial wastewaters, agrochemicals, malfunctioning wastewater treatment plants, and, locally, mining. These pressures and particularly their combination with drought and water scarcity, triggered by gradual diminishing river flows, threaten lotic and riparian ecosystems.

Despite the vital importance of river ecosystems to the Greek civilization since ancient times, a comprehensive knowledge on their natural characteristics and diversity or the extent to which they have been exploited and degraded is limited.

This book volume is designed to provide a fundamental knowledge on the running waters of Greece covering topics related to potamology, either through means of review chapters or specific case studies. The topics covered include geomorphology, biogeography, hydrology, hydrogeochemistry, hydrobiology, geomorphological, geological and biogeochemical processes, human pressures and ecological impacts, water management, both in the antiquity and today, and river restoration. This volume can be used as a basic or supplementary text in undergraduate and post-graduate courses or lectures in river ecology, river basin management, and conservation.

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