

Ecology of high altitude waters

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Abstrak

This book brings together current knowledge on patterns and processes in the ecology of streams, lakes, and wetlands situated at more than 3000 m above sea level. The alpine headwaters of the large Asian rivers and Lake Titicaca are both well-known and iconic examples. High altitude waters include more than these systems. They are both numerous and cover many habitat types, organisms, and specializations. The book provides an overview of the variety of aquatic ecosystems and habitats, their environmental features, prominent species, and their functional adaptations to the harsh aquatic environmental conditions through to global diversity patterns along altitudinal gradients, community dynamics, species interactions and dispersal, trophic relations, and energy flows. High altitude waters are ideal systems to address a broad range of topical themes in ecology because patterns and processes are both diverse and singular. The book highlights how key concepts in ecology (e.g. the stress gradient hypothesis, the biodiversity, ecosystem functioning relationship) could find relevant study models in high altitude waters. The usual perception of pristine mountain waters is far from true, particularly in the case of high altitude waters at low latitudes where human population density is often high, and local communities live in intimate contact with, utilize, influence, and exploit these aquatic systems. Climate change effects, extinction risks of mountain populations due to vanishing glaciers, multiple human impacts, management, and conservation are also treated thoroughly. The book is richly illustrated with diagrams and numerous pictures of these poorly known systems and species.