CONTROLLING EUTROPHICATION AND MANAGING VEGETATION IN EMERY RESERVOIR

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Master of Art in Geography

By

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Abstract

This research addresses the many calls to stem the overgrowth of aquatic plants in Emery Reservoir, a privately owned lake in the Sierra Foothills of California; this study assessed the reservoir's trophic state and influencing factors in order to provide a set of recommendations for both short-term and long-term management. Use of Secchi depth (visibility), phosphorous concentration, and several qualitative factors provided sufficient evidence to categorize the reservoir as eutrophic. Identification of the specific nuisance plants, the chemical and physical characteristics of the water, the role of the geographic and geologic features of the reservoir's watershed and the trends in weather and climate for the region were accomplished in order to develop an understanding of the role that the lake's ecosystem plays in its eutrophication, and to evaluate potential remedies to address the overgrowth of the lake's aquatic plants. A set of recommended actions was developed to assist the residents and property owners of the Emery Reservoir in organizing their volunteer activities and developing a sustainable lake management plan (LMP). Recommendations include lake use policy, board structure and volunteer activities, watershed management, and an integrated pest management (IPM) approach to address aquatic plant overgrowth and in-lake restoration efforts.

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