

POLICY AND PROGRAM ANALYSIS

Benefits and Economic Costs of Managed Aquifer Recharge in California

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ABSTRACT

Groundwater management is important and challenging, and nowhere is this more evident than in California. Managed aquifer recharge (MAR) projects can play an important role in ensuring California manages its groundwater sustainably. Although the benefits and economic costs of surface water storage have been researched extensively, the benefits and economic costs of MAR have been little researched. Historical groundwater data are sparse or proprietary within the state, often impairing groundwater analyses. General obligation bonds from ballot propositions offer a strategic means of mining information about MAR projects, because the information is available publicly. We used bond-funding applications to identify anticipated

MAR project benefits and proposed economic costs. We then compared these costs with actual project costs collected from a survey, and identified factors that promote or limit MAR. Our analysis indicates that the median proposed economic cost for MAR projects in California is \$410 per acre-foot per year (\$0.33 per m³ per year). Increasing Water Supply, Conjunctive Use, and Flood Protection are the most common benefits reported. Additionally, the survey indicates that (1) there are many reported reasons for differences between proposed and actual costs (\$US 2015) and (2) there is one primary reason for differences between proposed recharge volumes and actual recharge volumes (AFY): availability of source water for recharge. Although there are differences between proposed and actual costs per recharge volume (\$US 2015/AFY), the ranges for proposed costs per recharge volume and actual costs per recharge volume for the projects surveyed generally agree. The two most important contributions to the success of a MAR project are Financial Support and Good Communication with Stakeholders.

KEY WORDS

California groundwater, managed aquifer recharge, water storage, groundwater recharge