

Effectiveness of Class II Watercourse and Lake Protection Zone (WLPZ) Forest Practice Rules (FPRs) and Aquatic Habitat Conservation Plan (AHCP) Riparian Prescriptions at Maintaining or Restoring Canopy Closure, Stream Water Temperature, Primary Productivity

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Estimating the thermal response of headwater streams and rivers to forest management activities is increasingly important given current and projected climate change and increasing land use activities. Changes in stream temperature regimes are principally a concern when resulting temperatures are outside the range of thermal tolerances for aquatic ecosystem biota. Elevated stream temperatures can affect primary productivity, benthic invertebrates, fish habitat, as well as the rates of in-stream chemical processes. To address and mitigate negative impacts from forest harvesting activities in and around riparian zones, best management practices (BMPs) have been developed and implemented. In particular, BMPs aimed at maintenance or reestablishment of streamside forests have been effective at improving many of the functions of riparian zones. However, the effectiveness of current riparian regulations in California have not been thoroughly examined. The broad objectives of this research are to address critical questions related to the influence of current riparian regulations on important controls on water quality and stream metabolism, including canopy closure, solar radiation, and near-stream air temperature during the summer low flow period. We will also investigate the relative importance of the different drivers in influencing the variability in stream temperature dynamics (e.g., maximum, minimum, diurnal variations), dissolved oxygen, and primary productivity during summer low flow.