

Project Number: EMC-2015-005  
Project Name: Effectiveness of Class II headwater WLPZ for water temperature, near stream humidity, and stream flow

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**Background and Justification:**

Timber harvesting can, and has, affected surface water temperatures by removing trees that provide shade to streams. Effects may also result from increases in air temperature (micro-climate effects), changes in channel geometry (typically widening and shallowing), and reduced flows. Regional water quality control plans (Basin Plans) throughout California recognize the potential adverse impacts to the beneficial uses of water from anthropogenic changes in surface water temperature and therefore include temperature objectives.

Many waterbodies in forestlands throughout the state are listed on section 303(d) of the Clean Water Act as impaired due to elevated water temperature. In 2014, the North Coast Regional Water Quality Control adopted into its Basin Plan a policy for implementation of the temperature objective. The policy states that the temperature objective shall be implemented through a combination of riparian management and other temperature controls and directs Regional Water Board staff to coordinate with other agencies and jurisdictions.

Regional Water Boards have recognized significant increases in watercourse protection provided by the Forest Practice Rules, and have concluded that canopy retention standards for Class I and Class II large watercourses in the Anadromous Salmonid Protection Rules are generally considered to be adequate to protect from temperature impacts. It is less clear that canopy retention on standard Class II watercourses (regardless of whether beyond Class II large protection in ASP watersheds or outside of the zone of coastal anadromy) or that the criteria for determining large versus standard Class II are adequate to ensure compliance with temperature objectives.

A critical component of this is whether, and if so, how frequently, do streams that do not meet the definition of Class large flow water during the summer months such that they are vulnerable to increases in water temperature due to loss of shade.

**Objective(s) and Scope:**

This study should evaluate whether standard Class II watercourse canopy retention standards are effective in preventing reductions in shade on streams that could result in increases in surface water temperature.

The study should also evaluate effectiveness of the definition of Class II large at capturing those streams that flow water during the summer months that are vulnerable to increases in water temperature due to loss of shade. Stated another way, how many standard class II watercourses flow water during the summer months?

**FPRs or Regulation:** 916.4 [936.4, 956.4], 916.5 [936.5, 956.5], 916.9 [936.9, 956.9]

**EMC Critical Question or Priority:** WLPZ Riparian Function, Are the FPRs and associated regulations effective in: 1) maintaining and restoring stream water temperature, near stream humidity and stream flow? 2) maintaining canopy closure and water temperature? (Section 2.3, Theme 1)

**Collaborators:** NCRWQCB, DFW, CAL FIRE, private forestland owners

**Existing or Needed Funding:** Funding required

**Timeline and Fiscal year (s):** TBD

**Principal Investigator or Contact:** Dave Fowler, NCRWQCB; Bill Condon, CDFW

*Submitted by Dave Fowler, NCRWQCB*