

Project Number: EMC-2015-002

Project Name: FORPRIEM (revised) WLPZ, watercourse crossing, and road monitoring

Background and Justification:

FORPRIEM monitoring is CAL FIRE's only direct 'project monitoring' of THPs and NTMPs, except for Forest Practice inspections, and remains a very high priority for the Department. The first version of FORPRIEM ran from 2008-2013, with a detailed report finished at the end of last year (Brandow and Cafferata 2014). In that report, several suggestions were stated for the next version of FORPRIEM (ver. 2.0), including:

- (1) Using a stratified random draw of completed THPs, NTMP-NTOs to better test the FPRs on a larger percentage of higher risk sites. Use ArcGIS to stratify based on slope, surface soil erosion hazard, geology (landslide risk), etc.
- (2) Modifying the FORPRIEM methods to accommodate changes to the Forest Practice Rules, including the ASP rules that were implemented in 2010, and the Road Rules, 2013 rule package, adopted in 2014 and effective January 2015. In particular, new methods are needed to monitor and evaluate WLPZs with ASP-required multiple zones.
- (3) Gathering input from the BOF's Effectiveness Monitoring Committee on revisions to FORPRIEM and making an attempt to better utilize the other Review Team agencies to collect field data.

Objective(s) and Scope: The objectives of FORPRIEM remain to determine the implementation and short-term effectiveness of the Forest Practice Rules implemented on the ground related to water quality.

FPRs and regulations: 14 CCR §§ 913 (933, 953); 914 (934, 954); 916 (936, 956); 923 (943, 963)

EMC Critical Question or Priority: See Section 2.3, Themes 1, 2, 3, and 4

Collaborators: CAL FIRE, NCRWQCB, CVRWQCB, CGS, CDFW

Existing or Needed Funding: No additional funding required; CAL FIRE provides staff to collect data.

Timeline and Fiscal year (s): Finish draft methods document in 2015; beta test revised procedures in early 2016; schedule training sessions in spring of 2016; implement in summer 2016. Collect data for a minimum of 3-5 years.

Submitted by Pete Cafferata, 9/15/15

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

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?

Rule 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: CAL FIRE, NCWQCB, CGS

Needed Funding: \$\$

Principal Investigator or Contact: Jim Burke, NCRWQCB

Project Number: EMC-2015-008

Project Name: Monitoring habitat of anadromous species in forested watersheds.

Background and Justification:

Anadromous fish, such as coho and chinook salmon and steelhead trout, have complex life histories. Their populations can fluctuate from year to year and their numbers are subject to impacts from large scale events such as drought and ocean conditions, among other influences. Relatively smaller scale impacts, such as contemporary timber harvesting practices under current regulations may be slow to show any negative impacts to salmonid populations given their complex life cycle. Population monitoring is widely conducted across the northern part of the California Coast Ranges, but data are geographically and temporally limited. Population monitoring is labor intensive and costly, and even with good data it is usually difficult to determine trends from anthropogenic impacts for several years. Therefore, fisheries biologists often rely on aquatic habitat monitoring as a surrogate for determining impacts to a salmonid fishery over short times to determine trends. Habitat monitoring includes measuring stream temperature and turbidity, habitat typing, large woody debris surveys, and macroinvertebrate sampling, among others.

Objective(s) and Scope:

The scope of the project would involve any Class I watercourse where listed anadromous salmonids are present in order to adequately determine effectiveness of regulations. Currently, industrial timberland owners are conducting these various types of habitat monitoring. Reporting of trends to determine effectiveness will be critical in answering these questions. Anadromous salmonid habitat monitoring will be nested within watersheds that have information on the implementation and effectiveness of site-scale management measures, so that linkages can be inferred from site specific management measures to in-channel response.

There are three main objectives to this project:

1. Determine the status and trend of anadromous salmonid aquatic habitat.
2. Relate this monitoring data to local and watershed scale controls on habitat variability (e.g., stream flow, watercourse gradient, etc).
3. Relate this monitoring data to local and watershed scale measures of Forest Practice implementation and effectiveness.

A potential fourth objective may be to identify 14 § CCR 916.9, Option V projects and determine if alternatives proposed provide equal or better protection to salmonid habitat.

FPRs and regulations: 14 CCR §916.4[936.4, 956.4](a)(2), 14 CCR §916.9, 14 CCR §916.9[936.9, 956.9](v), Technical Rule Addendum No. 2

EMC Critical Question or Priority: See Section 2.3, Theme 5

Are the Anadromous Salmonid Protection rules effective in improving salmonid habitat such as increasing pool-riffle ratios, recruiting large woody debris, reducing infilling of pools, and providing optimal stream temperatures for salmonids.

Collaborators: CAL FIRE, CDFW, NOAA Fisheries, NCRWQCB, CVRWQCB, private timberland owners

Existing or Needed Funding: CAL FIRE provides staff to conduct implementation monitoring. No additional funding required.

Timeline and Fiscal year (s): Estimated minimum two years

Submitted by Stacy Stanish, CAL FIRE

Project Number: EMC-2015-011
Project Name: Long-term trend monitoring of SWAMP sites

Background and Justification:

This project involves the addition of continuous temperature monitoring in the warmer months (May to September) at a subset of sites routinely monitored as part of the SWAMP Status and Trend Monitoring Program. The Regional SWAMP Program rotates through watersheds on a planned basis as resources allow. The Regional Board believes this approach allows for the best use of resources given available resources.

Objective(s) and Scope:

The approach focuses on a few watersheds at a time, cycling back through them every four years as funding allows. The Regional SWAMP Program began the Status and Trend Monitoring Program in Fiscal Year (FY) 2000-01. The original monitoring design utilized a two-component approach to address regional monitoring: 1) long-term “permanent” monitoring sites for trend analysis, and 2) rotating “temporary” sites for basin surveys. The original rotation schedule was closely coordinated with the TMDL development schedule to provide additional current information on water quality parameters to the TMDL development process.

Rule or Regulation: 916 [936, 956]

EMC Critical Question or Priority: WLPZ Riparian Function

Collaborators: CAL FIRE, NCWQCB, CGS

Needed Funding: \$\$

Principal Investigator or Contact: R. Fadness, CAL FIRE, NCWQCB, CDFW-SWAMP