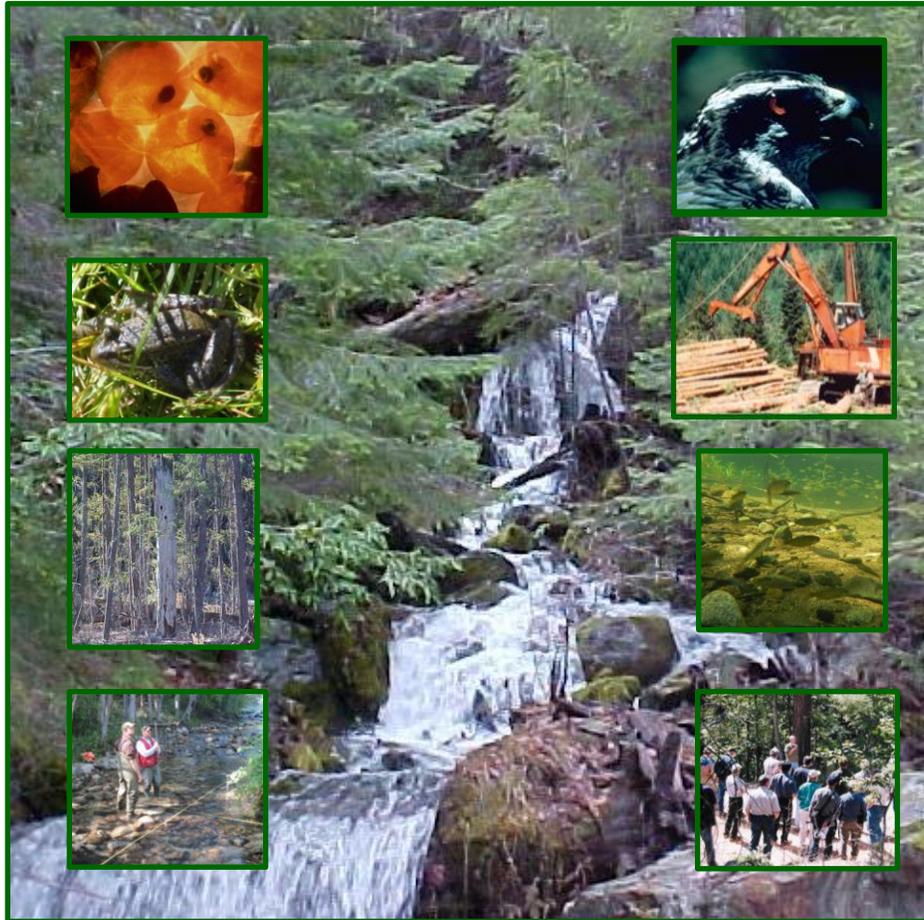

EFFECTIVENESS MONITORING COMMITTEE (EMC) Draft Monitoring Strategic Plan



Submitted to the California Board of Forestry and Fire Protection

November 17, 2014 Draft

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1.0 INTRODUCTION

Effectiveness monitoring is a key component of adaptive management and is necessary for assessing if management practices are achieving the various resource goals and objectives set forth in the California Forest Practice Rules (EMC Charter 2014). Monitoring is also a crucial component for complying with the “ecological performance” reporting requirements outlined in AB 1492. Over the past 20 years on California’s state and private forestlands implementation and limited short-term effectiveness monitoring has focused primarily on aquatic issues (Tuttle 1995, BOF 1999, Cafferata and Munn 2002, Brandow et al. 2006, Longstreth et al. 2008) with limited use as adaptive management. In 2014, the Effectiveness Monitoring Committee (EMC) was formed to develop and implement an effectiveness monitoring program that can provide an active feedback loop to policymakers, managers, agencies, and the public.

1.1 EMC Charter

The charter directs the EMC to be a collaborative, transparent, and science-based monitoring effort to develop a process-based understanding of the effectiveness of the California Forest Practice Rules and other forestry-related laws and regulations on maintaining or enhancing water quality, aquatic habitat, and wildlife habitats (Figure 1).

Figure 1 **EMC Charter Goals**

- (a) Provide a framework and support to comply with the reporting requirements of AB 1492 (Appendix C).
- (b) Support an adaptive management process by providing feedback to the Board regarding California Forest Practice Rules effectiveness.
- (c) Facilitate and recommend monitoring practices to evaluate how well current practices restore and maintain riparian, aquatic, and terrestrial habitat on private and state forestlands for state and federally listed species and priority species of concern (aquatic and terrestrial).
- (d) Ensure that the process is consistent with the goals of the Clean Water Act for water quality on private and state forestlands.
- (e) Ensure that the process is consistent with the goals of the Federal and State Endangered Species Acts on private and state forestlands.
- (f) Ensure that appropriate scientific methods and statistical evaluation, when necessary, are used to evaluate effectiveness of California Forest Practice Rules and other forestry-related laws and regulations.
- (g) Encourage dissemination of information through general public and scientific outlets.
- (h) Promote use of state demonstration forests for effectiveness monitoring of FPRs, water quality laws and Fish and Game codes, and other forestry-related laws and regulations.

1.1.1 EMC Current Membership

In 2014, the Board appointed 2 vice-chairs and 15 committee members, and identified 4 support staff (Appendix A). The members represent a wide range of natural resource expertise from academia, state and federal agencies, private and state forestland owners, and the public. Their expertise includes forest management, hydrology, geology, aquatic ecology, fisheries, wildlife management, and resource monitoring and sampling. The committee has held initial meetings to develop the committee structure and tasks for 2015. Currently the vice-chairs are facilitating meetings to ensure all actions and recommendations are made by consensus whenever possible. If failure to reach consensus occurs, the record (i.e., meeting notes) shall specify the key differences and the reasons consensus could not be reached. In 2014, vice-chairs and Executive Officer of the Board of Forestry and Fire will be working with committee members to establish their respective term duration.

1.1.2 EMC Ground Rules

As described in the EMC Charter, EMC meetings shall be publicly noticed and will be open to all interested parties, following the Bagley-Keene Open Meeting Act requirements. Board appointed EMC members are encouraged to follow meeting “ground rules” to foster a collaborative scientific-based approach to achieving the stated goals and objectives of the EMC. These ground rules include a commitment to:

- (1) Attempt to reach consensus.
- (2) Attend all scheduled meetings.
- (3) Listen carefully and ask questions to better understand unclear issues.
- (4) Have the EMC receive priority attention, staffing, and time.
- (5) Have all EMC members clearly define the purposes and goals of their organizations.
- (6) Have all EMC members recognize the legitimacy of the goals and differing perspectives of other EMC member organizations.

1.2 EMC Annual Reporting

The EMC will periodically report milestones and accomplishments to the Board. This periodic reporting will typically occur as an annual report to the Board, stakeholders and the public. Annually, the Board provides a report to the Legislature which documents the Board and Department progress toward attainment of their previous goals, allows for public input on direction of future Board goals. It is anticipated that in the first years of the EMC this annual

report will be part of the Boards annual report to the Legislature. As significant accomplishments are achieved, the EMC annual report will be a standalone report to the Board.

2.0 EMC STRATEGIC PLAN OR "ROAD MAP"

The EMC Strategic Plan is the committee "road map" that will guide how the committee achieves the EMC goals and objectives. It is the intent of the EMC to use the Strategic Plan as a living document that is periodically updated. The overall Strategic Plan is guided by seven primary objectives described in the EMC Charter which, for the purposes of developing critical monitoring questions, has been edited and summarized in Figure 2.

Figure 2 Primary Objectives in developing Critical Monitoring Questions

- Seek, accept and consider questions from stakeholders and the interested public.
- EMC members, in conjunction with the Board, should identify critical monitoring questions that address various EMC goals and objectives.
- Develop guidance for appropriate scientific methods and statistical evaluation used to evaluate effectiveness of California Forest Practice Rules.
- Increase understanding of the linkage between forest practices and the resource(s) of concern.
- Provide guidance for the acceptable level of scientific uncertainty across the broad spectrum of monitoring efforts from small-scale short-term monitoring to long-term replicated studies.
- Collaboratively develop methods to prioritize monitoring questions, and based on these methods, help select the highest priority projects to monitor.
- Promote collaborative fact-finding and understanding of scientific results at local, regional, and state levels.

2.2 Development of Critical Monitoring Questions

The first step in developing critical monitoring questions is seeking and accepting concerns, priorities, and monitoring questions from a wide variety of stakeholders including Agency(s), Department(s), Board(s), EMC members, and the interested public. Appendix B summarizes priorities and monitoring questions received, to date, from various stakeholders. The following

is intended to be a brief summary of the priorities and monitoring questions listed in Appendix B.

Board of Forestry and Fire Protection

For 2014, the Forest Practice committee and Management Committee provided six and two priorities, respectively. The Forest Practice committee priorities focus, not necessarily in order of importance, on roads, cumulative effects and slash treatment. The Management committee priorities focus on Watercourse and Lake Protection Zone (WLPZ) effectiveness emphasizing use of Demonstration State Forests as potential sites for monitoring. Since cumulative effects encompasses a broad spectrum of natural processes, no specific recommendations or monitoring has been proposed, however one approach would be to address cumulative effects by individual natural processes, focusing on one or more resource variables that may positively or negatively impact a specific natural process.

California Department of Fish and Wildlife

(To Be Developed)

State and Regional Water Quality Control Boards

(To Be Developed)

CALFIRE on-going Monitoring Questions

CALFIRE has been active in conducting both implementation (i.e., compliance) and effectiveness monitoring since the inception of the Forest Practice Rules (FPRs) (Tuttle 1995, Board 1999, Cafferata and Munn 2002, Brandow et al. 2006, Longstreth et al. 2008). These monitoring efforts have been conducted on the various Demonstration State Forests and on private forestlands. More recently CALFIRE has led several cooperative multi-agency monitoring effects including the Monitoring Study Group (MSG), Interagency Mitigation Monitoring Program (IMMP), Battle Creek Task Force, and FORPRIEM.

Currently, CALFIRE is either leading or participating in several monitoring efforts. The FORPRIEM effort data collection is complete and a report is being drafted. A new 5-year contract with US Forest Service Pacific Southwest Research Station--Arcata is being developed and a post-doctoral position will be filled in 2015 to complete a third experiment as part of the on-going Casper Creek studies. CALFIRE is working cooperatively within private forestland owners on the on-going Little Creek project and potential future Section V project, the South Fork Wages Creek project and the Judd Creek monitoring.

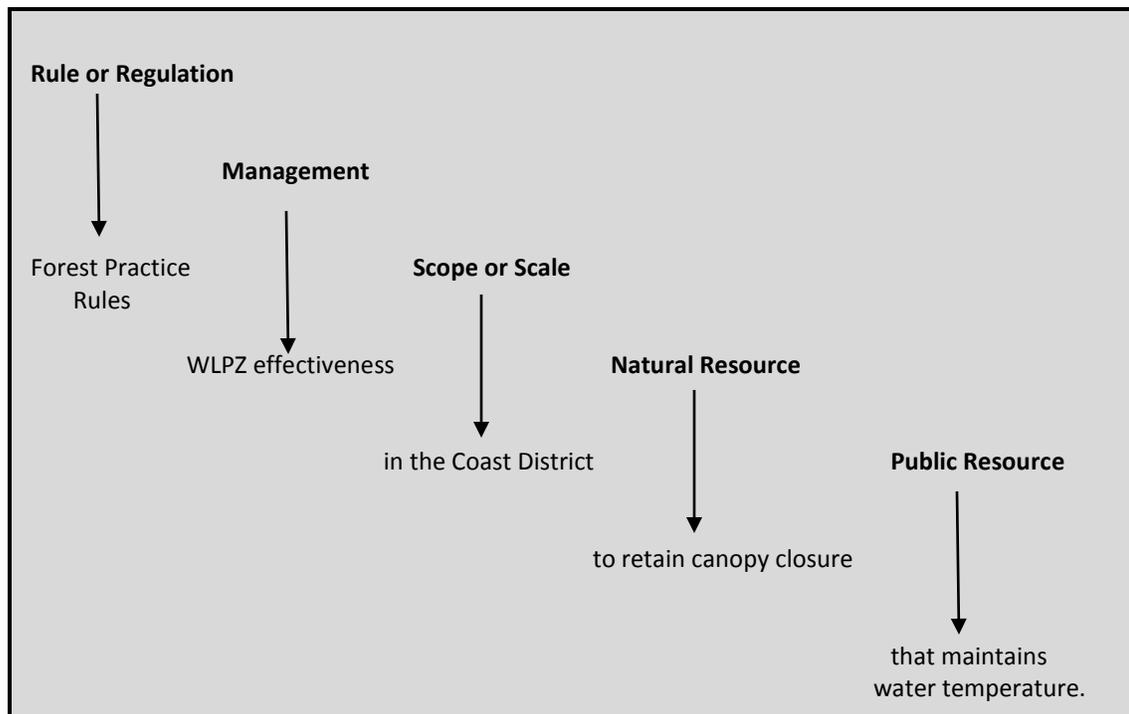
Public Stakeholder and EMC Member - Priorities and Monitoring Questions

(To Be Developed)

2.3 EMC Priorities and Critical Monitoring Questions

EMC members, in conjunction with the Board, have reviewed priorities and monitoring questions provided by a wide variety of stakeholders and how these may achieve various EMC goals and objectives. The EMC has transformed the priorities into critical monitoring questions following a specific structure which is intended to improve understanding and allow better comparisons between multiple monitoring questions. Each critical monitoring question is structured to identify: (1) Forest Practice Rule, Water Quality Objective, CDFW Code or Regulation, (2) Management Practice, (3) Temporal or Geographic Scope or Scale, (4) Natural Resource, and (4) Public Resource (Figure 3).

Figure 3 Example: EMC Critical Monitoring Question structure



The following critical monitoring questions are proposed.

(1) The FPRs, WLPZs and Waterboard objectives effectiveness in...

- (a) Maintaining canopy closure and stream water temperature,
- (b) Minimizing blowdown of trees and impacts to water quality,
- (c) Maintaining or restoring riparian function in Class II-L WLPZ and,
- (d) Enhancement of surface erosion filtration.

(2) The FPRs effectiveness in reducing sediment transport to watercourse channels by...

- (a) Best management practices for roads, skid trails and landings.
- (b) Reducing hydrologic connectivity.
- (c) Erosion Control Plans.
- (d) Implementing cost effective best management practices.

(3) The FPRs effectiveness in treating post-harvest slash to reduce...

- (a) Overall fire hazard.
- (b) Treatment of slash pile to reduce fire hazard.
- (c) Reduce greenhouse gas emissions????

(4) The FPRs effectiveness of geologic mitigation measures for...

- (a) Timber harvesting plans, Nonindustrial Timber Management Plans, and Working Forest Management Plans???.
- (b) Understanding scale, distribution and causal relationships.

(To Be Further Developed)

2.4 Catalog and Review Past and Ongoing Monitoring

(To Be Developed)

2.5 EMC Proposed Monitoring Projects - 2015

(See Appendix E & F: To Be Developed)

3.0 APPROPRIATE SCIENTIFIC METHODS AND REPORTS

3.1 Scientific Study Design

(To Be Developed)

3.2 Appropriate Temporal and Geographic Scale

(To Be Developed)

3.3 Scientific Uncertainty

The Board recognizes there is an overall scientific uncertainty concerning how forested ecosystems function within the framework of managed forestlands. There is also uncertainty in how various ecosystem components and processes relate to one another. Therefore, the EMC and Board recognize that while we will attempt to increase our scientific understanding of ecosystem components or processes in managed state and private forestlands, we may never fully understand these processes. Even with these known uncertainties, the EMC and Board will pursue a better understanding of how effective the FPRs are in achieving goals and objectives of the FPRs, water quality objectives and fish and wildlife code and regulations.

3.4 EMC Reports

Members of the EMC or principal investigators conducting monitoring will synthesize the results into final reports for the EMC. The reports shall include descriptions of purpose and need, scientific methods, results and technical analysis, evaluation of implications for resources and forest management operations, and disclosure of any possible limitations of results and any scientific uncertainty. The reports shall not provide policy or regulatory recommendations, other than ideas for potential further refinement of study methods to address any significant limitations and remaining scientific uncertainty. All final reports will be made available to the public on the internet.

All reports shall discuss the statistical, physical and biological relevance of the monitoring and results. Due to relatively small sample sizes and lack of controls for both dependent and independent variables associated with “specific question” studies, statistically rigorous testing of water-quality, aquatic habitat and wildlife resource questions is often difficult. However, well developed resource monitoring questions can improve scientific monitoring designs that limit spurious results and enhance the range of inference. Both statistical and biological

relevance of the monitoring and the resulting acceptable level of scientific uncertainty should be clearly stated in each monitoring proposal and final report.

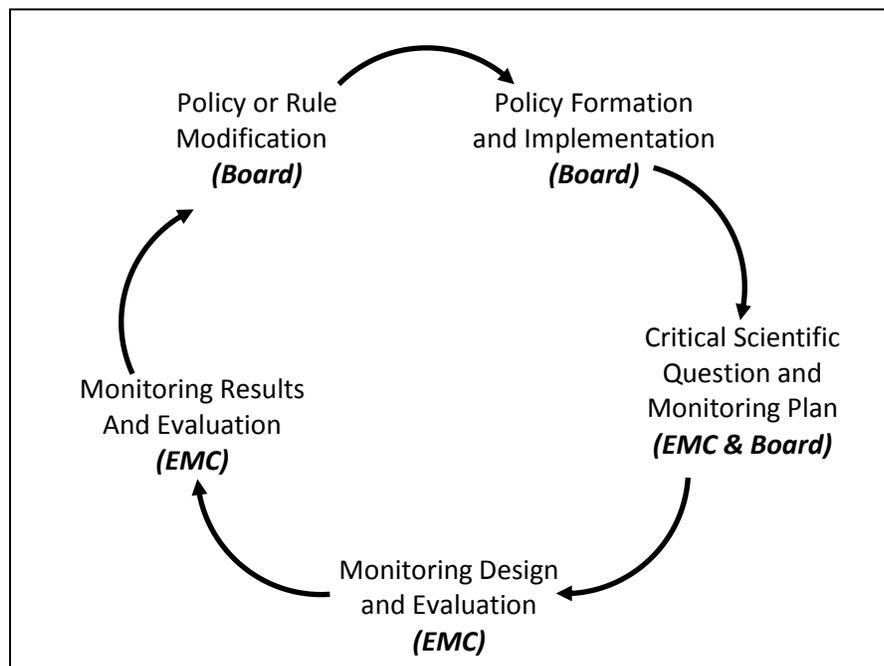
Results and findings of individual EMC reports are to be reviewed and discussed by the Board's Research and Science Committee (RSC). However, review by the RSC is for the specific purpose of developing long-term strategic planning by the RSC. Development of possible rule language options (See Section 4.0) based on results and findings of EMC reports, if necessary, shall be proposed by or brought before the Board's Forest Practice Committee for review and comment prior to submittal to the full Board.

4.0 BOARD - ADAPTIVE MANAGEMENT FRAMEWORK

The Board has previously discussed an Adaptive Management Framework. The Adaptive Management Framework is designed to consider scientific information provided by the EMC to better inform Board policy (Figure 4). Specifically, the Board will review results of EMC sponsored scientific studies to determine how effective FPRs are in meeting goals and objectives of the FPRs, water quality objectives, and fish and wildlife code and regulations. In addition, the Board will consider the following four goals as part of the Adaptive Management Framework:

- (1) To provide compliance with Endangered Species Act(s) for species on state and private forestlands.
- (2) To maintain and restore state and private forestlands to support the species that depend on them.
- (3) To meet the requirement of the Clean Water Act and Porter-Cologne Water Quality Control Act for water quality on state and private forestlands.
- (4) To keep private forestlands economically viable in the State of California.

Figure 4 Adaptive management using EMC sponsored monitoring to better inform Board policy and regulations.



When the Board reviews scientific information from EMC sponsored studies it is also important for Board members to understand the overall context and implications of the research. To achieve this objective the Board shall review information provided in either the scientific report or additional information provided by the EMC that describe:

- (1) The scientific or policy relevance of the study.
- (2) The overall quality of the study design and results.
- (3) Confidence in results explaining effectiveness of FPRs, Water Quality objectives or Fish and Wildlife code or regulations.

In addition, the Board has discussed a scientific report review checklist in more detail. Appendix D contains a more detailed description of this checklist. One portion of the checklist refers to more scientific questions appropriate for the EMC, while Board portions of the checklist refers to more policy-based questions.

5.0 REFERENCES

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- Board of Forestry and Fire Protection (BOF). 1999. Hillslope monitoring program: Monitoring results from 1996 through 1998. Interim report prepared by the Monitoring Study Group (MSG). Sacramento, CA. 70 p.
- Brandow, C.A., P.H. Cafferata, and J.R. Munn. 2006. Modified completion report monitoring program: monitoring results from 2001 through 2004. Monitoring Study Group Final Report prepared for the California State Board of Forestry and Fire Protection. Sacramento, CA. 80 p.
- Cafferata, P.H. and J.R. Munn. 2002. Hillslope monitoring program: Monitoring results from 1996 through 2001. Final Report submitted to the California State Board of Forestry and Fire Protection. Sacramento, CA. 114 p.
- Cafferata, P.H., D.O. Hall, and G.D. Gentry. 2007. Applying scientific findings to forest practice regulations in California. In: Proceedings of the NCASI 2007 West Coast Regional Meeting, September 26-27, 2007, Portland, Oregon. P. H-39 to H-46.
- Coe, D. 2009. Water quality monitoring in the forested watersheds of California: status and future directions. Report prepared for the California State Board of Forestry and Fire Protection's Monitoring Study Group. Sacramento, CA. 37 p. plus Appendices. Available online at: http://www.bof.fire.ca.gov/board_committees/monitoring_study_group/msg_monitoring_reports/draft_monitoring_tracking_report_09nov09.pdf
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- Tuttle, A.E. 1995. Board of Forestry pilot monitoring program: hillslope component.

Unpubl. Rept. submitted to the California Department of Forestry and Fire Protection and the Board of Forestry and Fire Protection under Contract No. 9CA38120. Sacramento, CA. 29 p. Appendix A and B: Hillslope Monitoring Instructions and Forms.

Washington Forest Practice Board (WFPB). 1987. Timber/Fish/Wildlife agreement: a better future in our woods and streams. Final Report. Olympia, WA. 57 p. Available online at:
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Washington Forest Practice Board (WFPB). 2005. Guidelines for adaptive management program. Section 22. Olympia, WA. 31 p. Available online at:
http://www.dnr.wa.gov/Publications/fp_board_manual_section22.pdf

APPENDIX A: EMC APPOINTED MEMBERS

Name	Specialty	Affiliation
Russ Henly	Vice-Chair	Resources Agency
Stuart Farber	Vice-Chair	Board of Forestry
Agency Representatives		
Matthew Bokach	Wildlife	USFS
Bill Condon	Wildlife	DFW
Drew Coe	Hydrology	CAL FIRE
René Leclerc	Geology/Hydrology	CVRWQCB
Dan Wilson	Fisheries	NOAA/NMFS
Nick Kunz	Watersheds	SWRCB
Bill Short	Geology/Watersheds	California Geological Survey
Brian McFadden/Fowler	Watersheds	NCRWQCB
Monitoring Community		
Kevin Boston	Forestry/Engineering (RPF)	Oregon State University
Erin Kelly	Forest Policy/Economics	Humboldt State University
Brian Dietterick	Watersheds	Cal Poly san Luis Obispo
Tom Engstrom	Wildlife/Botany (RPF)	SPI
Matt House	Hydrology/Aquatic	Green Diamond Resources
Sal Chinnici	Wildlife	Humboldt Redwood Company
Ed Smith		The Nature Conservancy
Support Staff		
George Gentry	Executive Officer	Board of Forestry
Pete Cafferata	Hydrology	CAL FIRE
Stacy Stanish	Biologist	CAL FIRE
Bill Solinsky	Forestry (RPF)	CAL FIRE

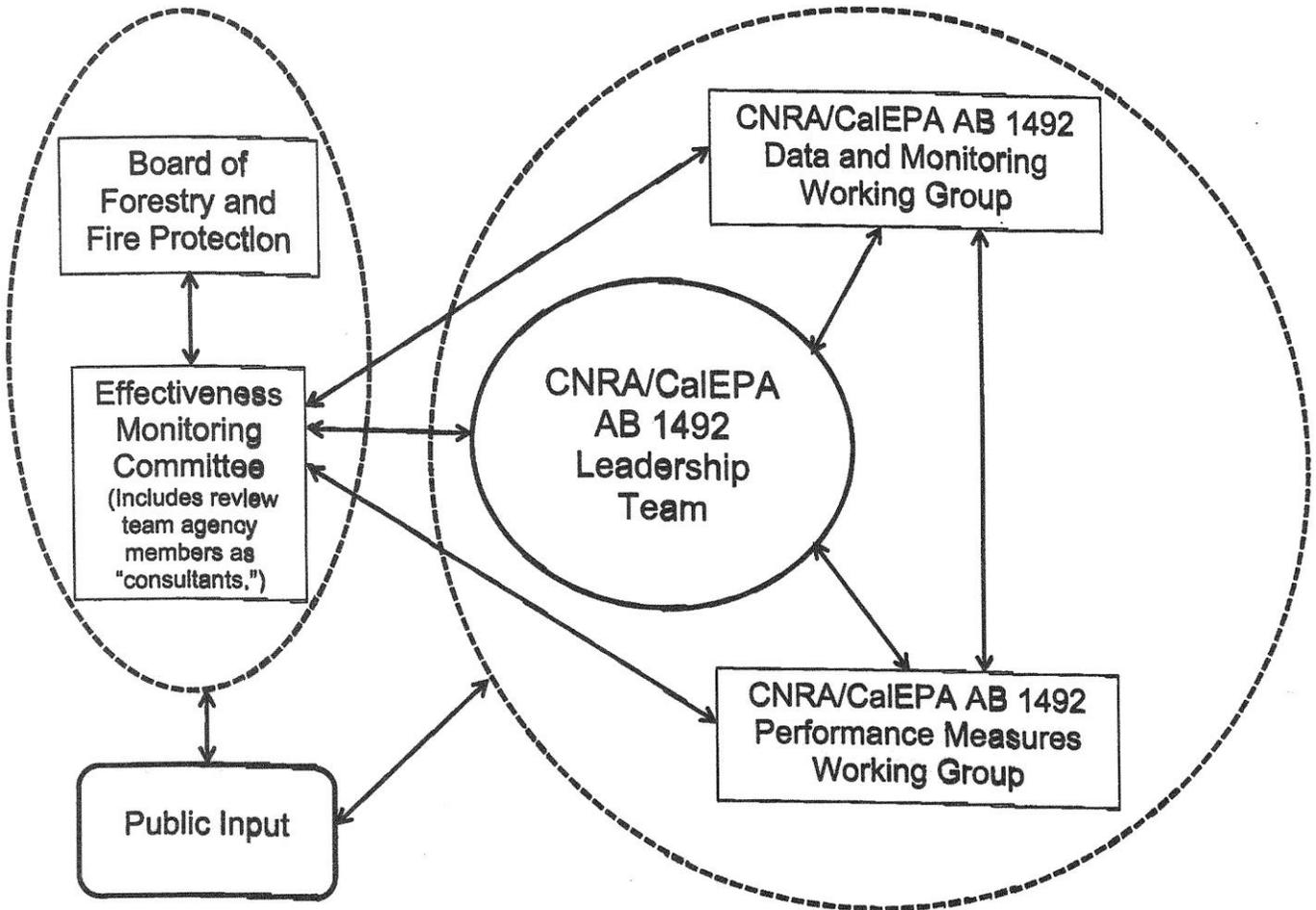
APPENDIX B: PRIORITY RECEIVED FROM BOARDS, DEPARTMENTS & AGENCIES

(Priorities received have been grouped by natural resource subject).

Monitoring Subject	Priority or Monitoring Question	Submitted by and Year
Watercourse	WLPZ effectiveness in maintaining canopy closure and water temperature?	MSG (2009)
Watercourse	WLPZ tree blowdown and impacts to water quality.	MSG (2009)
Roads	Sediment transport to watercourse channels from roads, skid trails and landings.	MSG (2009)
Roads	Effectiveness of reducing road hydrologic connectivity.	MSG (2009)
In-Lieu	Effectiveness of additional plan mitigation measures and in-lieu practices.	MSG (2009)
Roads	Erosion Control Plan effectiveness	MSG (2009)
Mass Wasting	Effectiveness of plan geologic mitigation measures	MSG (2009)
Mass Wasting	Review of landslide dimension and causal relationships.	MSG (2009)
Fisheries	Monitoring anadromous fish abundance	MSG (2009)
Roads	FORPRIEM - watercourse crossings	CALFIRE (2014)
Watercourse	FORPRIEM - WLPZ shade	CALFIRE (2014)
Slash Treatment	Effectiveness of fuel treatment to reduce fire hazard reduction.	BOF-FPC (2014)
Watercourse	Effectiveness of Class II-L rules to protect, maintain and restore riparian function	BOF-FPC (2014)
Roads	Effectiveness of Road Rules to reduce sediment delivery and hydrologic disconnection	BOF-FPC (2014)
Roads	Comparison of Road Rules economic costs versus ecological benefit of implementing rules	BOF-FPC (2014)
Wildlife	Effectiveness of Northern spotted owl rules and regulations in protecting and conserving the species	BOF-FPC (2014)
Slash Treatment	Effectiveness of residual slash pile treatment in comparison to fire hazard reduction or fire behavior	BOF-FPC (2014)
Watercourse	Monitoring effectiveness of WLPZ canopy closure in Demonstration State Forests harvest plans.	BOF-MC (2014)
Watercourse	Monitoring effectiveness of WLPZ surface erosion filtration in Demonstration State Forests harvest plans.	BOF-MC (2014)

* BOF-FPC = Forest Practices Committee, BOF-RPC = Resource Protection Committee, BOF-MC = Management Committee, MSG = Monitoring Study Group

APPENDIX C: ORGANZATIONAL FRAMEWORK OF AB1492



APPENDIX D: ADAPTIVE MANAGEMENT FRAMEWORK CHECKLIST

Framework Responsibility	Adaptive Management Checklist
EMC	<p>Overall Scientific or Policy Relevance</p> <ol style="list-style-type: none"> 1. Does the study better inform understanding of effectiveness of FPRs? 2. Does the study better information understanding of water quality objectives and fish and wildlife code or regulations? 3. Does the study contribute to understanding achievement of numeric or performance targets set Agencies or Departments?
EMC	<p>Overall quality of the study design and results</p> <ol style="list-style-type: none"> 1. Was the study design and analysis of results consistent with EMC recommendations? 2. Are study results scientifically relevant and significant?
EMC	<p>Confidence in results explaining effectiveness of FPRs</p> <ol style="list-style-type: none"> 1. What is our previous scientific understanding and how have the results better informed our current scientific understanding? 2. What scientific uncertainty remains in our current understanding? 3. What is the relationship between this study and other that may be planned, underway or recently completed? 4. Feasibility of obtaining additional information to better inform policy and what will the additional information provide? 5. What will additional information or studies cost and timelines for completion?
BOARD	<p>Review scientific results and additional EMC information</p> <ol style="list-style-type: none"> 1. Develop appropriate management policy to information provided by EMC. 2. If management policy action is necessary, identify options and determine how feasible each option is from an operational and regulatory perspective. 3. If Board action is necessary, identify whether appropriate for Committee development or full Board review.

APPENDIX E: SUMMARY OF EMC REVIEWED PROJECTS

The following summary table is a catalog of proposed monitoring projects received or developed by the Effectiveness Monitoring Committee. Following the summary table are individual Project Summary(s) that provide more detailed project information.

Project Number	Project Title	Principal Investigator(s)
EMC-2014-001	Class II-L Monitoring	D. Coe
EMC-2014-002	FORPRIEM - Watercourse Crossing Monitoring	P. Cafferata, C. Brandow
EMC-2014-003	FORPRIEM - WLPZ Total Canopy Monitoring	P. Cafferata, C. Brandow
EMC-2014-004		
EMC-2014-005	Road Rules - effectiveness of reducing mass wasting	D. Coe
EMC-2014-006	Road Rules - effectiveness of reducing hydrologic disconnection and surface erosion.	D. Coe
EMC-2014-007	Effectiveness of Class II headwater WLPZ for water temperature, near stream humidity and stream flow	NCRWQCB
EMC-2014-008	Post-harvest effectiveness of WLPZ measures to maintain or enhance coho (<i>Oncorhynchus kisutch</i>) in forested watersheds	Public Comment
EMC-2014-009	Redding THP Review Pilot Project	CALFIRE
EMC-2014-010	Monitoring relative abundance of anadromous species in forested watersheds	MSG (2009)
EMC-2014-011	Stream water and habitat quality monitoring - Pilot Project	C. James, J. Harrington
EMC-2014-012	Railroad Gulch In-Stream Effectiveness of THP Implementation	A. Stubblefield
EMC-2014-013	Landscape-level long-term water temperature monitoring of forested watersheds	B. McFadin, R. Fadness
EMC-2014-014		
EMC-2014-015		
EMC-2014-016		
EMC-2014-017		
EMC-2014-018		
EMC-2014-019		

APPENDIX F: INDIVIDUAL EMC REVIEWED PROJECT(S)

Project Number: EMC-2014-001
Project Name: Class II-L Monitoring

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation: 14 CCR 916.9 (936.9, 956.9)(c)(4)

EMC Critical Question or Priority:

Collaborators:

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact: Drew Coe, CALFIRE

Submitted by XXXXXX XXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-002
Project Name: FORPRIEM watercourse crossing monitoring

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: CALFIRE, NCWQCB, CGS

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact: Pete Cafferata, CALFIRE

Submitted by XXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-003
Project Name: FORPRIEM - WLPZ Total Canopy Monitoring

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: CALFIRE, NCWQCB, CGS

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact: Pete Cafferata, CALFIRE

Submitted by XXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-004

Project Name:

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators:

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact:

Submitted by XXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-005
Project Name: Road Rules - Effectiveness of reducing mass wasting

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: CALFIRE, NCWQCB, CGS

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact: D. Coe, CALFIRE

Submitted by XXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-006
Project Name: Road Rules - Effectiveness of reducing hydrologic disconnection and surface erosion.

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: CALFIRE, NCWQCB, CGS

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact: D. Coe, CALFIRE

Submitted by XXXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-007
Project Name: Effectiveness of Class II headwater WLPZ for water temperature, near stream humidity and stream flow

Background and Justification:

*Suggested sub-topics:
Initial Stakeholder concern,
Conservation or Recovery Plan objectives
Board, Agency or Department Priority*

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: CALFIRE, NCWQCB, Private forestland owners

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact:

Submitted by XXXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-008
Project Name: Post-harvest effectiveness of WLPZ measures to maintain or enhance coho (*Oncorhynchus kisutch*) in forested watersheds.

Background and Justification:

*Suggested sub-topics:
Initial Stakeholder concern,
Conservation or Recovery Plan objectives
Board, Agency or Department Priority*

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators:

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact:

Submitted by XXXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-009
Project Name: Redding THP Review Pilot Project

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: CALFIRE, NCWQCB, CGS, CDFW

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact:

Submitted by XXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-010
Project Name: Monitoring relative abundance of anadromous species in forested watersheds.

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: Monitoring Study Group (MSG)

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact:

Submitted by XXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-011
Project Name: Stream water and habitat quality monitoring - Pilot project

Background and Justification: The intent of this project is to establish a monitoring framework to support collaborative monitoring for applying California's SWAMP ecological performance measures to evaluate water and habitat quality in streams on private forest lands. Direct collaborators include SWRCB, DFW, CALFIRE, CFA, and private forest owners. This project will also collaborate with US Forest Service scientists currently developing a similar probability based monitoring program with SWAMP on California public forest lands.

Objective(s) and Scope: This project will use the SWAMP Protocol which is a well-tested, standardized method for direct site assessment of channel hydrologic and geomorphic conditions, stream and riparian habitat type, water chemistry, and benthic macro invertebrate and algal community composition. Sites will be assessed using the full SWAMP protocol and additional measures relevant to forestry such as riparian canopy cover, vegetation and species stand type will be included. All sample locations will be permanently marked by monument to help field crews locate the exact stream site for future monitoring events performed. Sampling will be conducted by experienced SWAMP field crews, biological and chemical samples will be processed by certified laboratories. SWAMP bioassessment data provide direct measures of ecological condition and can be used to compare stream reaches across space and time.

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: SWRCB, DFW, CALFIRE, California Forestry Association, private landowners

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact: Cajun James, Sierra Pacific Industries
Jim Harrington, DFW

Submitted by XXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulations.

Project Number: EMC-2014-012
Project Name: Railroad Gulch In-Stream Effectiveness of THP implementation

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: Humboldt State University, Humboldt Redwood

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact: A. Stubblefield

Submitted by XXXXXXXXXX 10/29/14

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation.

Project Number: EMC-2014-013
Project Name: Landscape-level long-term water temperature monitoring of forested watersheds.

Background and Justification:

Suggested sub-topics:

Initial Stakeholder concern,

Conservation or Recovery Plan objectives

Board, Agency or Department Priority

Objective(s) and Scope:

Rule or Regulation:

EMC Critical Question or Priority:

Collaborators: CALFIRE, NCWQCB, CDFW-SWAMP

Existing or Needed Funding:

Timeline and Fiscal year (s):

Principal Investigator or Contact: Bryan McFaddin, Rich Fadness

Submitted by XXXXXXXXX

Note: Rule or Regulation = Forest Practice Rule, Water Quality Objective or Fish and Wildlife Code or Regulation
