

**INITIAL STATEMENT OF REASONS**

**Threatened or Impaired Watershed Rules, 2009**

[Published May 8, 2009]

**Title 14 of the California Code of Regulations (14 CCR):**

Amend:

§ 895	Abbreviations Applicable Throughout the Chapter.
§ 895.1	Definitions.
§ 898	Feasibility Alternatives.
§ 914.8 [934.8, 954.8]	Tractor Road Watercourse Crossing.
§ 916 [936, 956]	Intent of Watercourse and Lake Protection.
§ 916.2 [936.2, 956.2]	Protection of the Beneficial Uses of Water and Riparian Functions.
§ 916.5 [936.5, 956.5].	Procedure for Determining Watercourse and Lake Protection Zone (WLPZ) Widths and Protective Measures.
§ 916.9 [936.9, 956.9]	Protection and Restoration in Watersheds with Threatened or Impaired Values.
§ 916.11 [936.11, 956.11]	Effectiveness and Implementation Monitoring.
§ 916.12 [936.12, 956.12]	Section 303(d) Listed Watersheds.
§ 923.3 [943.3, 963.3]	Watercourse Crossings.
§ 923.9 [943.9, 963.9]	Roads and Landings in Watersheds with Threatened or Impaired Values.

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THESE REGULATIONS ARE INTENDED TO ADDRESS**

The “Threatened or Impaired Watershed” (T/I) rules is the common name used to describe the subset of California Forest Practice Rules (FPRs) intended to protect listed anadromous salmonid (salmon) species and their habitat in forest settings. The T/I rules regulate commercial timber harvesting on private land in watersheds where salmon species are designated as threatened or endangered species under the State or Federal Endangered Species Acts (TES). The rules also address timber harvesting and operational requirements for waterbodies listed under the federal Clean Water Act, section 303(d) as “impaired.” The T/I rules were originally adopted in July 2000 and have been in place on an interim basis since that time.

The T/I rules are being revised to:

- **Ensure their adequacy in protecting the species and the species’ habitat.**  
Anadromous salmonid populations have declined and remain at historical low levels

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during the period of the T/I interim rules (2000 to 2009). In California (and the Pacific Northwest) these widespread declines over the last several decades have been attributed to a variety of factors. One factor has been the loss and degradation of suitable habitat conditions in river systems for the rearing of juveniles and spawning of adults. Numerous studies have shown that forest management practices can have significant adverse effects on the habitat conditions of anadromous salmonids through, for example, loss of riparian vegetation affecting shading, stream temperature regimes and large wood recruitment potential; increased input of fine sediment filling pools and degrading spawning gravels;; and altered nutrient input to the stream.

Efforts to protect and improve riparian habitat and the multiple benefits it provides has been promoted as a key strategy for maintaining and restoring the critical processes that create and maintain fish habitat (Beechie and Bolton 1999; Roni et al. 2002). For example, Opperman and Merenlender (2004) reported on the effectiveness of riparian restoration for improving channel morphology and fish habitat in four hardwood-dominated streams in Mendocino County, California. These streams support populations of steelhead and contain reaches that were restored through exclusionary fencing implemented 10-20 years earlier (DFG 2009).

Long-term conservation of salmonids requires protecting not only the immediate functions that riparian vegetation provides, but the ecological conditions within the riparian zone needed to maintain natural vegetation communities (e.g. soil productivity, microclimate) as well (Spence et al. 1996). Although riparian buffers alone are insufficient to ensure healthy salmonid communities, there is consensus in the scientific community that protection of riparian ecosystems should be central to all salmonid conservation efforts on both public and private lands (FEMAT 1993; Murphy et al. 1995).

Everest and Reeves (2007) point out that full recovery of riparian structure and function from modified forest management practices may require a century or more, allowing riparian vegetation to recover sufficiently to again contribute large wood and bank stability to aquatic systems. In the meantime, ESA listings of more salmonid stocks and other aquatic species may occur, and additional extinctions are possible. Moyle et al. (2008) predict that most or all coho salmon populations in coastal streams in both the Central California Coast and Southern Oregon/Northern California Coastal Evolutionary Significant Units (ESU) will be extinct within 25-50 years. This underlines the extreme importance of maintaining and restoring suitable habitats for threatened salmonid species in California and the Pacific Northwest, and for minimizing adverse effects from land and water management practices (DFG 2009).

In conclusion, changes to the T/I rules are warranted to protect and restore habitat conditions for coho salmon and other anadromous salmonids in California river systems, increase fish population abundance and so improve the conservation status of threatened salmonid species.

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- **Address public agency species listing and recovery actions:** As a result of the severe declines in salmonid species numbers, several actions have been taken over the last 15 years to address the species needs. These actions include official listings under the California Endangered Species Act (CESA) and under the Federal Endangered Species Act (ESA), development and implementation of a coho recovery strategy by the California Department of Fish and Game (DFG), adoption and implementation of the Board's Threatened or Impaired Watershed rules in 2000, and adoption and implementation of incidental take permitting rules in cooperation with the Board and DFG. These actions are summarized below. As part of its ongoing evaluation of the effectiveness of its rules, and in view of these actions, the Board needs to ensure its regulations are relevant and appropriate.

- In 1996, the State Fish and Game Commission listed coho salmon south of San Francisco Bay as endangered under CESA. Then in 1997, the National Marine Fisheries Service (NMFS) listed coho salmon as threatened throughout its range in California under the ESA.

In April 2001 the State Fish and Game Commission accepted a petition for consideration to list coho salmon as endangered north of San Francisco Bay. In August 2002, the State Fish and Game Commission found that coho salmon north of San Francisco to Punta Gorda warranted listing as endangered and that coho salmon from Punta Gorda to the Oregon border warranted listing as threatened. In March 2005 coho salmon were listed under CESA as endangered from San Francisco to Punta Gorda and threatened north of Punta Gorda to the Oregon border.

In February 2004, the State Fish and Game Commission approved DFG's coho salmon recovery strategy, including policies to guide the issuance of incidental take authorizations for timber operations and activities under CESA. As such, pursuant to Fish and Game Code 2112, DFG developed and adopted rules and guidelines to implement those policies. The DFG procedural regulations that implement these policies were adopted in September 2007 and provide the procedural basis for the Board's regulations 14 CCR § 916.9.1 and 916.9.2. These regulations set forth certain definitions and substantive measures in the FPRs that enable DFG to establish incidental take permitting procedures that meet the permit issuance criteria under CESA (Fish and Game Code § 2081), subdivisions (b) and (c) for incidental take permits, including a certification process for providing incidental take permits under CESA for timber operations and activities that may result in take of coho salmon.

- **Ensure that the rules are necessary and not unnecessarily economically burdensome:** The existing T/I regulations have an economic impact on landowners who harvest timber in these watersheds. This impact is related to restricting timber harvest in areas near streams and conducting operations in a manner that does not have a significant adverse environmental impact to the species. Providing a regulatory framework that is equitable, flexible and meets the species habitat needs will ensure that landowners can efficiently continue on-going timber operations and other land management activities. Economic viability for forest landowners is critical to

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keeping the forest habitats intact and avoiding conversion to other land uses less suitable for properly functioning salmonid habitat.

- **Ensure rules are based on credible and current science:** Recent science information was evaluated to better inform an appropriate set of rules that provide for protecting and restoring the species and the species' habitat.
  
- **Meet statutory requirements under Public Resource Code 4553 for review and periodic revisions to FPRs.** The T/I rules have been reviewed, but not comprehensively, since their inception in 2000. Periodic review and update of regulations are required by statute.
  
- **Establish permanent T/I rules:** As mentioned above, the Board is extremely aware of the need to protect listed species that may be impacted by practices that are regulated under the Board's purview and thus adopted changes to the FPRs under a previous rulemaking package (Protection for Threatened and Impaired Watersheds, 2000, OAL File No. Z00-0118-14). This action initially established the T/I rules. These rules were adopted to enhance protection of anadromous salmonids and their habitat. Specific objectives of these rules include protection of instream spawning and rearing habitat, migratory routes, stream flow, adequate numbers of large trees for recruitment of large woody debris, vegetative canopy, shade, and daily and seasonal water temperatures. In adopting these rules, the Board chose to establish a specific date the rule changes would expire. In subsequent rulemaking actions, the Board extended these regulations in 2001, 2002, 2003, 2004, 2006 and 2008. Without further extension, these regulations for the protection of anadromous salmonids will expire on December 31, 2009, and are one of the primary necessities for this rule proposal. Without a regulatory action, there would be insufficient forestry rules for the protection of salmonid habitat.

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**GENERAL INFORMATION ABOUT THE PROPOSAL**

The proposed permanent T/I regulations address only a portion of the existing T/I rule sections/topics that became effective in July of 2000. This was due to time and financial constraints. The Board has indicated that they intend to complete the review and potential updates of the T/I rules in subsequent actions. Below is a summary of the subsections/topics of the T/I rules that are proposed for revision under this action and those that will be reviewed at a later date.

**Topics/Sections of T/I rules that were reviewed and proposed under this action:**

- Definitions
- Goal/Intent/Objectives
- Channel Zone operations
- Class I, II and III watercourse WLPZ widths
- Large woody debris, canopy retention standards
- Operational best management practices
- Minor clerical edits related to winter operations, roads requirements and soil stabilization rules
- Geographic scope
- Water drafting
- Site-specific plans and nonstandard practices
- Projects and plans that are excluded from the T/I rules

**Topics/Sections of T/I rules that were not reviewed**

- Monitoring and adaptive management
- Cumulative impacts assessment
- Tractor road crossing and logging road requirements
- Inner gorges and related geological features
- 303(d) listed water body requirements

Substantive changes were made in the proposed T/I rules compared to the existing interim rules. Highlights are shown below.

- Greater specificity in geographic scope by creating regional rules reflecting differences in salmonid habitat settings, the variability of different salmonid species life history needs, and the physiographic differences within California bioregions;
- Recognition of the need to protect unique riparian features such as channel migration zones, flood prone areas, and differentiating small Class II watercourses from large Class II watercourses;
- Class I and Class II watercourse WLPZs widths and silvicultural requirements revised to best reflect current science for protecting riparian function;

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- New protective standards for small headwater watercourses (Class II and III watercourses).
- Revised goals and objectives to promote achievement of properly functioning salmonid habitat, contribute to recovery of salmonid species and restoration of salmonid habitats; and protect riparian zones from catastrophic wildfires.
- Development of guidance for site-specific plans that contain flexibility for landowners to meet T/I goals and objectives while providing appropriate disclosure for regulatory evaluation;
- Greater permitting efficiency for landowners and public agencies through incorporation of regulatory language that provides consistency with Fish and Game Code Section 1600 et seq., conformance with Regional Water Board permitting requirements, and consistency with DFG and NMFS species recovery plans and incidental take permit or take avoidance requirements.
- Development of “Best Management Practices” (i.e. BMPs) that will guide expectations for conduct of timber operation to achieve goals of the rules.

### **Optional Amendments**

The amendments in this proposal to the T/I rules contain Optional Amendments. Optional Amendments provide the Board the opportunity to consider alternative measures, their basis, level of protection, level of risk, and feasibility.

Optional Amendments are identifiable in the proposed text when the term “**OPTIONAL AMENDMENT**” is stated, and the text related to the Optional Amendment is in brackets [text]. Each Optional Amendment is numbered for clarity. If the same Optional Amendment is reused in several subsections of the proposed rules, its number is retained.

Use of the term “Optional Amendment” will not be part of the final adopted regulatory language. Once the Board decides on inclusion or exclusion of the content of the Optional Amendment, the term will be removed. Optional Amendments may be adopted or deleted by the Board, after its duly required notice and public hearing processes, without further public notices or hearings.

Optional Amendments are either “mutually exclusive” or “additive”. A mutually exclusive option means the option would replace other proposed language and only one alternative can be chosen. An additive option adds language and does not replace any proposed language. Other options will “trigger” inclusion of other Optional Amendments. For example, if the Board chooses to adopt Optional Amendment 7 (post harvest shade standards measured by Angular Canopy Density) then the corresponding Optional Amendments 1 and 2 that provide an abbreviation and definition of the term also would be chosen.

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<b>Option Number</b>	<b>Option name</b>	<b>Description</b>	<b>Choice</b>	<b>Rule section</b>
1	ACD Abbreviation	Abbreviates Angular Canopy Density (ACD).	Include only if Option 7 adopted. Non-substantive.	895
2	ACD Definition	Definition for Angular Canopy Density.	Include only if Option 7 adopted. Non-substantive	895.1
3	Stable Operating Surface Definition	Adds further descriptions for SOS definition.	Adds standard.	895.1
4	60% OSC Inner Zone	Requires minimum 60% overstory canopy (OSC) post harvest for Inner Zone of Class I and Class II-L WLPZs in all T/I areas.	Choose between 80% OSC, or 60% (Opt. 4) OSC.	916.9 (f) and (g)
5	80%/60% OSC Inner Zone	Requires 80% OSC for Coast Forest Practice District in coho ESU and 60% OSC post harvest for Northern FPD of coho ESU for Inner Zone of Class I WLPZs.	Choose between 80% OSC, and 80% (Coast FPD) /60% (North- FPD) (Opt. 5).	916.9 (f)
6	Trade larger trees for smaller trees	Permits substituting smaller diameter trees in place of 13 largest trees per acre in combined Core/Inner Zone of Class I or Class II-L WLPZs.	Adds standards	916.9 (f) and (g)
7	ACD	Requires 80% ACD for post harvest combined Core and Inner Zone of Class I WLPZ and Class II-L WLPZs	Adds standard.	916.9 (f) and (g)
8	Basal Area	Requires post harvest minimum basal area standards for Inner Zone of Class I and Class II-L WLPZs.	Adds standard.	916.9 (f) and (g)
9	Outer Zone in coho ESU	Requires Outer Zone for Class I WLPZs in coho ESU only when slopes >50% with tractor logging.	Choose between requiring Outer Zone when adjacent to evenage silviculture or Option 9.	916.9 (f)
11	60% OSC Inner Zone non coho ESU	Requires minimum 60% overstory canopy (OSC) post harvest for Inner Zone of Class I and Class II-L WLPZ in areas outside coho ESU	Must choose between 70% OSC, or 60% OSC.	916.9 (f) and (g)
12	650 ft length of Class II-L	Requires maximum Class II-L length of 650 feet from confluence of Class I watercourse	Choose between 650 ft. (Opt.12) or 1000 ft length.	916.9 (g)
13	No Core Zone for Class II standard	Deletes requirement for a 15 ft (10 ft in non coho ESU) Core Zone for standard Class II WLPZs.	Choose between having a Core Zone or deleting Core Zone (Opt. 13) for standard Class II.	916.9 (g)
15	Non-merch large down wood Class III	Requires only nonmerchantable large down wood be retained in 50 ft. ELZ of Class III watercourses.	Retain all large wood or only non-merch wood (Opt.15).	916.9 (h)(2)

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<b>Option Number</b>	<b>Option name</b>	<b>Description</b>	<b>Choice</b>	<b>Rule section</b>
16	Non-merch hardwood Class III 30 ft.ELZ	Requires retaining only nonmerchantable hardwood trees in 30 ft ELZ of Class III watercourses.	Retain all hardwoods for a distance of 30 ft, non-merch for 30 ft (Opt. 16), or all hardwood for 50 ft (Opt. 17)	916.9 (h)(4)
17	All hardwood Class III 50 ft ELZ	Requires retaining all hardwood trees be retained for up to 50 ft in ELZ of Class III watercourses.	Retain all hardwoods for a distance of 30 ft, non-merch for 30 ft (Opt. 16), or all hardwood for 50 ft (Opt. 17)	916.9 (h)(4)
18	Non-merch small trees Class III 30 ft ELZ	Requires retaining only nonmerchantable small trees (countable for purposes of reforestation stocking) in 30 ft. ELZ of Class III watercourses.	Retain all small trees for a distance of 30 ft, only non-merch small trees for 30 ft (Opt.18), or all small trees for 50 ft (Opt.19).	916.9 (h)(6)
19	All small trees Class III 50 ft ELZ	Requires retaining all small trees (countable for purposes of reforestation stocking) for up to 50 ft in ELZ in Class III watercourse.	Retain all small trees for a distance of 30 ft, only non-merch small trees for 30 ft (Opt.18), or all small trees for 50 ft (Opt.19).	916.9 (h)(6)
20	Erosion treatment of roads	Requirements for treating road surface to prevent erosion runoff moved to other sections (916.9 (k) and (l)).	Generally non-substantive	916.9 (n)
21	Machine Packed Slash Mulch	Permits minimum surface coverage for soil stabilization and erosion control to be reduced from 90% to 75% when slash much is machined packed on ground.	Adds standard	916.9 (n)
22	Timing of erosion treatment	Requires soil stabilization treatments prior to any rain to prevent "overland flow in deleterious quantities to beneficial uses", verses existing rules that requires preventing any "overland flow".	Adds standard. Generally non-substantive	916.9 (n)
23	Treatment of natural ground cover to prevent erosion	Revises existing language to require areas where natural ground coverage cannot prevent erosion to be treated for erosion control.	Adds standard. Non-substantive	916.9 (n)
25	Water drafting	Revises water drafting requirements to eliminate need for water drafting operator to keep log of activities and streamline THP/DFG 1600 permit documentation.	Choose between proposal fully compliant with DFG drafting requirements or Option 25.	916.9 (r)
26	Objectives for Site specific plans	Requires site specific plan to only meet objectives in 916.9 (c) versus meeting both objectives and resultant effects of prescriptive standards of T/I rules.	Choose proposed language in 916.9 (v) (1.) or Option 26.	916.9 (v)

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<b>Option Number</b>	<b>Option name</b>	<b>Description</b>	<b>Choice</b>	<b>Rule section</b>
27	Criteria for approval of site specific plans	Requires only Director of CAL FIRE to approve site specific plan when considering if plan meets objectives of 916.9 (c) verses proposed language that requires Director disapproval when two or more agencies submit comments that plan would not meet goals.	Choose proposed language or Option 27.	916.9 (v)
28	Criteria for approval of site specific plans	Requires only Director of CAL FIRE to approve site specific plan when considering if plan meets both objectives of 916.9 (c) and same effect as prescriptive requirements verses proposed language that requires Director to disapproval when two or more agencies submit comments that plan would not meet goals.	Choose proposed language or Option 28.	916.9 (v)
30	Exception for culverts standards	Provides exceptions for new or reconstructed culverts to not meet 100 year flood flow design standard when similar culverts historically have withstood 10 year flood flow "stressing storms".	Adds standard.	923.3 (a)
31	Culvert design for continuous bed load	Deletes requirement that all new culverts shall be designed to provide for natural movement of bed load to form a continuous bed of stream material to moderate water flow velocities suitable for salmon passage.	Choose proposed language or Option 31.	923.3 (g)
32	Road management plan	Establishes more general requirements for describing roads and plans to mitigate affects of long term road occupancy of the watershed values.	Choose proposed language or Option 32. generally non-substantive.	923.9 (a)
33	Enhance or oversized drainage structures	Clarifies conditions where in high risk area drainage features need to be oversized to prevent failures	Choose proposed language or Option 33. Generally non-substantive.	923.9 (a)

**14 CCR § 895**

**Abbreviations Applicable Throughout Chapter**

**NECESSITY**

The FPRs use technical terms that often contain multiple words. Use of abbreviations provides a consistent and clear manor in which to communicate the terms. Use of abbreviations shorten the regulatory text and provide for brevity and clarity of the regulations for the public.

## **SPECIFIC PURPOSE OF THE REGULATION**

The following abbreviations represent various technical terms used in the proposed rules for compliance actions by CALFIRE.

**ACD** (Angular Canopy Density): This abbreviation is an Optional Amendment. It is labeled as Optional Amendment 1 in the regulatory proposal. Inclusion of this abbreviation is directly dependent on the Board's decision to include the term "Angular Canopy Density" in the adopted rule language. If the Board chooses to include the term "Angular Canopy Density," then this abbreviation would also be included in the adopted rule language. If the term "Angular Canopy Density" is not included in the adopted rule language, then the abbreviation would not be included in the rule language.

The abbreviation and term "ACD" is a requirement for measuring solar radiation being blocked by vegetation primarily within in the Core and Inner Zones of Class I and Class II Large watercourses. The abbreviation is used directly or by reference in 14 CCR 895.1, 14 CCR § 916.9 [939.9, 956.9] subsection (f) (2) (B)(6), 14 CCR § 916.9 [939.9, 956.9] subsection (f) (3) (C), and 14 CCR 916.9 [939.9, 956.9] subsection (g) (B) 2.

**CMZ** (Channel Migration Zone): The abbreviation and term "CMZ" defines a unique type of watercourse where in the watercourse's active channel shifts position laterally over a relatively short period of time (i.e., approximately 100 years). The abbreviation is used in 14 CCR 895.1 under the definitions of "watercourse transition line", in the objectives of the "Inner Zone" of the watercourse and lake protection zone (WLPZ) in 14 CCR § 916.9 [939.9, 956.9] subsection (C)(2), and in Class I watercourse section of 14 CCR § 916.9 [939.9, 956.9] subsection (f) (3).

**QMD** (Quadratic Mean Diameter): The abbreviation and term "Quadratic Mean Diameter" establishes an arithmetic equation for determining the average diameter of a the average volume tree in a stand of trees. It is a well-established technical term used by Professional Foresters to establish tree size and wood volumetric relationships. The abbreviation is used directly or by reference for "Inner Zone" WLPZ requirements for Class I and Class II Large watercourses.

**WTL** (Watercourse Transition Line): The abbreviation and term "Watercourse Transition Line" defines the location on the ground were the channel zone ends and the WLPZ begins. The abbreviation is used directly for "Inner Zone" WLPZ requirements for Class I and Class II watercourses.

## **ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include abbreviations.

This alternative was rejected as it would not address the public problem this regulation is intended to address and the necessity of the rule. It would result in unnecessary additional words being added to text, and not contribute to clarity or brevity.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations have been considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules. The Board has determined that the potential cost for this regulation would be minimal; consisting of minor printing costs to the State if any costs are incurred. This cost would not exceed the costs normally incurred each year by CAL FIRE to print and distribute rule language to field personnel. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed change to the language under 14 CCR § 895 is intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 895.1      Definitions**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The FPRs commonly utilize technical terms in the regulation text that are generally recognized by Federal and State agencies, as well as the forest products industry representatives. The appropriate application of these terms in regulation is often reliant on an established definition. The Board has provided through regulation a listing of common terms and definitions used for the T/I rules that support terminology used throughout the rules.

The Board's proposed regulations address the need for definitions in three ways:

- 1) The proposal readopts the Board's existing T/I definitions. Several of the Board's existing definitions established in relation to the protection of anadromous salmonids in July 2000, will expire on December 31, 2009, absent further Board action.

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- 2) The Board has proposed revisions to existing definitions to better clarify terminology and more accurately reflect the scientific derivations of the term.
- 3) The Board has proposed new, additional terms included in this proposal that lack an established definition. New definitions are similarly needed to ensure appropriate application of the terms of newly proposed language in the regulation.

### **NECESSITY**

The proposed readoption of existing definitions changes to existing definitions, and addition of new definitions are necessary because the current and proposed FPRs include technical terms without an adequate description of the term. An established definition of these technical terms to be included under 14 CCR § 895.1 is necessary to ensure the appropriate application of these terms and to ensure that all affected persons can readily access the meaning of the terms when necessary to understand and enforce the regulations.

### **SPECIFIC PURPOSE OF THE REGULATION**

The proposed readoption of existing definitions,, changes to existing definitions, and addition of new definitions are intended to ensure that the affected public and the reviewing agencies understand the technical terms that are utilized in the proposed changes to the regulations and those that are currently included in the FPRs. This is additionally intended to allow for brevity in the rule language and subsequently to increase the clarity and enforceability of proposed and existing regulations. The specific purpose of each definition is shown below.

- The proposed definition of the term *Angular Canopy Density* is intended to provide a common, enforceable definition of a term which is being utilized in the proposed rule changes. This definition is an Optional Amendment. It is labeled as Optional Amendment 2 in the regulatory proposal. Inclusion of this definition is directly dependent on the Board's decision to include the term *Angular Canopy Density* in the adopted rule language. If the Board chooses to include the term *Angular Canopy Density* then this definition would also be included in the adopted rule language. If the term *Angular Canopy Density* is not included in the adopted rule language, then the definition would not be included in the rule language.

The definition and term *Angular Canopy Density* is a requirement for measuring solar radiation being blocked by vegetation primarily located in the Core and Inner Zones of Class I and Class II Large watercourses. Blocking solar radiation is an important buffer strip function for preventing increases in stream temperature and foresters and enforcement officials can determine this blockage by measuring ACD (Beschta et al. 1987, OFPAC 1999). The abbreviation is used directly or by reference in 14 CCR § 895.1, 14 CCR § 916.9 [939.9, 956.9] subsection (f)(2) (B)(6), 14 CCR § 916.9 [939.9, 956.9] subsection (f) (3) (C), and 14 CCR § 916.9 [939.9, 956.9] subsection (g) (B) (2.).

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- The proposed definition of the term *Channel Migration Zone* is intended to clearly describe a geomorphic feature for field identification for consistent application of the FPRs. This term is not currently used in the FPRs. The definition defines a unique type of watercourse where in the watercourse's active channel shifts position laterally over time. The definition is used in 14 CCR § 895.1 under the definitions of "watercourse transition line," in the objectives of the "Inner Zone" of the watercourse and lake protection zone (WLPZ) in 14 CCR § 916.9 [939.9, 956.9] subsection (C)(2), and in the Class I watercourse section of 14 CCR § 916.9 [939.9, 956.9] subsection (f) (3).
- The existing definition of *Channel Zone* is modified to clarify where the location of this geomorphic feature is found for consistent application of the FPRs. The definition relies on the definition and field establishment of the term *watercourse transition lines*. The definition is used in 14 CCR § 916.2. [936.2, 956.2] related to protection of riparian functions, in 14 CCR § 916.9 [939.9, 956.9] subsection (e) to describe operational limitation in the channel zone, in Class I watercourse sections of 14 CCR § 916.9 [939.9, 956.9] subsection (f), in 14 CCR § 916.9 [939.9, 956.9] subsection (g) for Class II watercourses, in 14 CCR § 916.9 [939.9, 956.9], subsection (h) for Class III watercourses, and in 14 CCR § 916.9 [939.9, 956.9], subsection (r) for water drafting.
- The proposed definition of the term *Confined Channel* is intended to clearly describe a geomorphic feature for field identification for consistent application of the FPRs. This term is not currently used in the FPRs. The definition defines a unique type of watercourse channel without a significant flood prone area (or floodplain). The definition is used in 14 CCR § 895.1 under the definition of "watercourse transition line", and in Class I watercourse sections of 14 CCR § 916.9 [939.9, 956.9] subsection (f) (2) and (f)(5).
- The existing definition of *Fifty-Year Flood Flow* is deleted as it is not necessary because the term is adequately addressed under the proposed new definition of *Flood Flow*.
- The proposed definition of the term *Flood Flow* is intended to clearly describe a hydraulic function in streams that can reoccur over varying intervals of time. It provides for measurement standards for consistent application of the FPRs. This term is not currently used in the FPRs. This definition replaces the 50 year flood flow definition with a standard definition, where any flood return interval could be inserted. It avoids duplicative definitions for rules which referred to varying periodic flood flow intervals. The definition is used in 14 CCR § 895.1 under the definitions of *stressing storm*, in 14 CCR § 916.9 [939.9, 956.9] subsection (f) (3) regarding best management practices for flood prone areas, and in 14 CCR § 923.9 [933.9, 953.9] for watercrossing design standards.
- The proposed definition of the term *Flood Prone Area* is intended to clearly describe a geomorphic feature for field identification for consistent application of the FPRs. This term is currently used in the FPRs, but not defined. The proposed rules extends

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the use of the term to 14 CCR § 895.1 under the definitions of *confined channel*, 14 CCR § 916.9 [939.9, 956.9] subsection (c) (3) regarding objectives, 14 CCR § 916.9 [939.9, 956.9] subsections (f) (3) and (4) for describing the WLPZ widths and operational limitations for the feature, and 14 CCR § 916.9 [939.9, 956.9] subsection (v) regarding content for site specific riparian standards. Flood Prone Area is necessary to address specific protection and operational criteria and limitations for timber harvesting in this riparian setting. FPAs have been identified in science literature as containing critical habitat for salmonids.

Several alternatives were considered for defining this term. Following field review of this definition in January 2009, it was determined that a variety of methods could be used to determine the outer perimeter of the FPA. This was due to the variability of the FPA characteristics (width) and the uncertainty with determining “bankfull” depth. The need for including a non-engineering method for determining the 20-year floodplain was also included because this particular flood interval is considered to be most critical for coho salmon habitat (Cafferata et al. 2005).

- The proposed definition of the term *Lake Transition Line* is intended to clearly describe the enforceable location on the ground where a WLPZ begins. It is needed for field identification and consistent application of the FPRs. The term was previously embedded in the definition of *watercourse and lake transition line*, which is to be deleted under this proposal. The definition is made separate for clarity and does not add or modify any prescriptive requirement. The term is not specifically used in sections of the T/I rules.
- The proposed definition of the term *Properly Functioning Salmonid Habitat* establishes goals and objectives which are desired to be obtained or protected as a result of timber operations conducted under the T/I rules. The term is intended to encompass a well documented suite of habitat conditions (e.g. optimal stream temperature or volume and frequency of large wood loading in streams) that are desirable for various life stages of salmonid species. The definition does not list the specific metrics for *Properly Functioning Salmonid Habitat*, as this is not practical for the wide variety of species settings and habitats throughout the geographic scope of the T/I rules. The proposed definition makes specific that not all proper habitat features for all life stages need to be present everywhere, all the time, nor is it reasonable to expect that they can because of natural variability of stream and habitat situations overtime. The definition is used in 14 CCR § 916.9 [939.9, 956.9] subsection (c) (3) regarding objectives for all WLPZs, and in 14 CCR § 916.9 [939.9, 956.9] subsection (f) (2) (B) (7) regarding Class I Inner Zone post harvest basal area standards, 14 CCR § 916.9 [939.9, 956.9] subsection (f) (3) (E) for best management practices in FPAs, and as a goal to be achieved in any site specific FPA plan under 14 CCR § 916.9 [939.9, 956.9] subsection (f) (4).
- The proposed definition of the term *Riparian-Associated Species* is intended to clearly describe those species dependent upon riparian areas. This term is used in current regulations, with no definition provided, and is also added to new T/I sections. The term is needed for specificity in relation to protection of beneficial uses of water

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are intended to be protected. The definition is used in 14 CCR § 916 [936, 956] Intent of Watercourse and Lake Protection, and 14 CCR § 916.9 [939.9, 956.9] subsection (c) objectives for timber operations or silvicultural prescriptions in WLPZs.

- The revisions to the existing definition of the term *Saturated Soil Conditions* are intended to accomplish several purposes: 1) to separate characteristics of saturated conditions from resultant environmental impacts by deleting reference to ancillary undesirable impacts to water quality. These deleted undesirable impacts are reinserted into specific rule requirements that prescribe operational limitations for saturated soil conditions and are reinserted into 14 CCR § 916.9 [939.9, 956.9] subsection (l)(3); 2) to clarify when the road itself is an unacceptable condition; 3) to delete unnecessary and repetitive descriptions of conditions that are evidenced by saturated soil conditions; and 4) to delete redundant references to resultant impacts from operation on saturated soil conditions. The proposed changes were developed by the Board's Interagency Ad Hoc Road Rules Committee and submitted to the Board in 2008. The definition is used in establishing limitations for timber operations in the winter period in 14 CCR § 916.9[939.9, 956.9] subsection (l).
- The revisions to the existing definition of the term *Stable Operating Surface* are intended to separate characteristics of a *Stable Operating Surface* from resultant environmental impacts. This results in improved clarity of the definition. The deleted undesirable impacts are reinserted into specific rule requirements that prescribe operational limitations for *Stable Operating Surfaces* and are reinserted into 14 CCR § 916.9 [939.9, 956.9] subsection (k).

This proposed definition of *Stable Operating Surface* contains an Optional Amendment. It is labeled as Optional Amendment 3 in the regulatory proposal. Optional Amendment 3 adds a phrase to the proposed definition. Optional Amendment 3 may be chosen or deleted by the Board, and is not dependant on other options being selected and is independent for the other portions of the proposed definition. Optional Amendment 3 further clarifies characteristics of a *Stable Operating Surface*. In both the proposed definition and the Optional Amendment 3, the Board's intent is that hauling on a *Stable Operating Surface* would typically be permitted with minor puddles (such as those created by road watering for dust abatement during the dry season). However, when the road system has significant ponding that does not drain or evaporate in a reasonable time period, this would not be a characteristic of a stable operating surface. The definition is used in 14 CCR § 916.9[939.9, 956.9] subsection (k) Year-Round Logging Road, Landing and Tractor Road Use Limitations.

- The proposed definition of the term *Stream Order* is intended to clearly describe a methodology for determining the locations of a Class II Large watercourse. It is needed to provide a consistent, reproducible method for determining these types of watercourses. The methodology is based on Strahler 1957. The definition is used in 14 CCR § 916.9 [939.9, 956.9] subsection (g) (1)(A)(1.), office-based approaches for identifying Class II Large watercourses.

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- The proposed definition of the term *Stressing Storm* is intended to clarify and make definitive the type of storm and associated water flows which a watercourse crossing must withstand without sustaining damage or failure. This proposed definition is dependant on the inclusion or exclusion of Optional Amendment 30 in 14 CCR § 923.3 [933.3, 953.3] subsection (e), Watercourse Crossings.
- The existing definition for *Watercourse or Lake Transition Line* is proposed for deletion. The concepts and requirements contained in it are re-inserted under the definitions for *Watercourse Transition Line* and *Lake Transition Line*. This change is proposed for clarity of terminology.
- The proposed definition of the term *Watercourse Transition Line* is intended to replace the concepts and requirements deleted from the definition *Watercourse or Lake Transition Line*. The definition is necessary to clearly describe the enforceable location on the ground where a WLPZ begins. It is needed for field identification for consistent application of the FPRs. The proposed definition has been modified from the content previously contained in the definition of *Watercourse or Lake Transition Line*. The proposed definition no longer has separate definitions for confined and unconfined channels.

The proposed definition is also revised to provide a more definitive and less ambiguous way to establish the Watercourse Transition Line. It is based on using descriptive field indicators instead of engineering calculations. Field tests in January 2009 with natural resource and hydrological professionals found wide agreement in field implementation of the descriptive method. The descriptive terms were adapted from definitions in Washington Forest Practice Board (WFPB) (2004) document titled “Standard Methods for Identifying Bankfull Channel Features and Channel Migration Zones.” The WFPB FPRs begin the Riparian Management Zone (analogous to the WTL) at the outer edge of the bankfull width if a CMZ is not present.

The definition is used in 14 CCR § 916.9 [939.9, 956.9] subsection (f), (g), (h) for requirements of Class I, II and III watercourses and in 14 CCR § 916.9 [939.9, 956.9] subsection (t) for large tree retention requirements under emergency notices.

- The proposed definition of the term *Watersheds in the coho salmon Evolutionary Significant Unit (ESU)* is intended to provide a common, enforceable definition to the unique Klamath and Coast bioregions that are within the scope of the T/I watersheds and where specific rules for Class I, and II watercourses apply. It defines planning watersheds within the coho ESU where any listed salmonids are present or can be restored. The term is necessary to provide a common set of regulations that are demonstrated to be scientifically appropriate for the unique life cycle needs of salmonid species found within this ESU. Use of this term is also necessary because the habitat and geology conditions in the Klamath and Coast bioregions of California have many similarities that warrant regulations tailored to the salmonid species life history needs and physiological characteristics unique to these bioregions. The term

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is also necessary to facilitate future use of the proposed T/I rules for meeting the terms or conditions of 14 CCR §§ 916.9.1 and 916.9.2.

The definition is used in 14 CCR § 916.9 [939.9, 956.9] subsections (f) and (g), (h) for requirements of Class I, II and III watercourses, and in 14 CCR § 916.9 [939.9, 956.9] subsection (t) for large tree retention requirements under emergency notices.

- The proposed revision for *Watersheds with listed anadromous salmonids* modifies the definition of the existing term that establishes the over arching geographic scope of the T/I rules. The amendments are necessary to clarify the intent of the regulations as being primarily to address officially listed salmonid species within and without the coho ESU. This change is consistent with the actual application of the T/I rules. The existing definition refers to “Impaired” watersheds as specified under the Clean Water Act Section 303 (d) laws for impaired waterbodies and the proposed T/I rules are not designed to completely meet 303 (d) “impaired” waterbody legal requirements. Amendments that delete the phrase “implementing regulations” of the existing rule add no legal or other discrete clarification of the geographic scope of the rule and are unnecessary.
- The sentence “*The amendments to 14 CCR § 895.1 adopted on March 15, 2000 and April 4, 2000, which became effective July 1, 2000, shall expire on December 31, 2009.*” is an existing regulation found at the end of the definitions section in 14 CCR § 895.1. It refers to the December 31, 2009 expiration date for the definitions adopted under the T/I rules in July 2000. The proposed amendment deletes this sentence. This results in effectively making permanent any definition that became effective under the original T/I rules. In addition to rules being revised or deleted in this proposal, there are three other definitions that will become a permanent part of the FPRs as a result of deleting this sentence. Those definitions are *Bankfull stage*, *Beneficial Functions of Riparian Zone*, and *Inner Gorge*. These definitions remain essential components of the regulatory framework for the T/I rules and are intended to be retained in the FPRs.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include definitions.

This alternative was rejected as it would not address the public problem this regulation is intended to address and the necessity of the rule. It would result in unnecessary additional words being added to text, and not contribute to clarity or brevity.

2. Variations on content and wording of the definitions.

This alternative considered different terms and conditions for each definition. These alternatives were rejected as they did not provide the clarity or specificity necessary for enforcement of the rules, and nor did they accurately reflect the science information intended to be the basis for the definition.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules. The Board has determined that the potential cost for this regulation would be minimal; consisting of minor printing costs to the State if any costs are incurred. This cost would not exceed the costs normally incurred each year by CAL FIRE to print and distribute rule language to field personnel. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed change to the language under 14 CCR § 895.1 is intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 898**

**Feasibility Alternatives**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The T/I rules that became effective in July 2000 added requirements for cumulative impacts assessment specific to Clean Water Act section 303 (d) listed waterbodies. These regulations would more logically be organized with other rules for other Clean Water Act section 303 (d) listed waterbodies in 14 CCR 916.12. Providing a well organized set of FPRs will improve the rules' utility and clarity for the regulated public and enforcement agencies.

The sentences of this section that became effective in July 2000 as a result of the Board's adoption of the T/I rules also contains an expiration date that if not amended would result in a portion of the rule being deleted. This would result in having an ineffective set of regulations for addressing protection of Clean Water Act section 303 (d) listed waterbodies.

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**NECESSITY**

The proposed amendments are necessary to ensure an organized and effective set of regulations for Clean Water Act section 303 (d) listed waterbodies, and avoid expiration of portions of this section.

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendment relocates requirements for cumulative impacts assessment specific to Clean Water Act section 303 (d) listed waterbodies to 14 CCR § 916.12[936.12, 956.12]. Amendments also delete the expiration date for these portions of the section.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not relocate requirements for cumulative impacts assessment specific to Clean Water Act section 303 (d) listed waterbodies to 14 CCR 916.12.

This alternative was rejected as it would not address the public problem this regulation is intended to address and the necessity of the rule. It would result in less organized rules and not contribute to clarity or enforceability.

2. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of Clean Water Act section 303 (d) listed waterbodies.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules. The Board has determined that the potential cost for this regulation would be minimal, consisting of minor printing costs to the State if any costs are incurred. This cost would not exceed the costs normally incurred each year by CAL

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FIRE to print and distribute rule language to field personnel. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed change to the language under 14 CCR § 898 is intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids and for protection of Clean Water Act section 303(d) listed waterbodies.

**14 CCR § 914.8 [934.8, 954.8]**

**Tractor Road Watercourse Crossing.**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The T/I rules that became effective in July 2000 added requirements in subsection (c) for crossing facilities on watercourses that support fish to allow for unrestricted passage *of all life stages of fish that may be present, and for unrestricted passage of water*. It also required description of these crossing facilities to allow evaluation by the review team agencies and the public, provide direction to the LTO for implementation, and provide enforceable standards for the inspector.

The sentences of this section that became effective in July 2000 as a result of the Board's adoption of the T/I rules also contains an expiration date that if not amended would result in a portion of the rule being deleted. This would result in having an ineffective set of regulations for addressing watercourse crossings.

**NECESSITY**

The proposed amendments are necessary to ensure an effective set of regulations for addressing watercourse crossings, and avoid expiration of portions of this section.

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendment deletes the expiration date for these portions of the section.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing watercourse crossings that are

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necessary to meet the goals of fish providing passage and disclosure for effective enforcement of the rule.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The Board has determined that the potential cost for new costs associated with this regulation would be minimal; consisting of minor printing costs to the State if any costs are incurred. This cost would not exceed the costs normally incurred each year by CAL FIRE to print and distribute rule language to field personnel. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed change to the language under 14 CCR § 914.8. [934.8, 954.8] is intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916 [936, 956]**

**Intent of Watercourse and Lake Protection**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

There are multiple laws, regulations, and policy among at least three public agencies (Department of Fish and Game, Regional Water Quality Control Boards, and the Board of Forestry and Fire Protection) in California that enforce or provide permitting for commercial timber harvesting on private land. This system has resulted in landowners needing to comply with multiple regulations from different agencies. This has resulted in complex regulatory system and inefficiencies in permitting and permit enforcement. This circumstance is particularly relevant in the locations with listed anadromous salmonids and where waterbodies are listed as impaired under the Clean Water Act (CWA) section

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303 (d) because of the heightened regulatory oversight in locations with sensitive environmental conditions.

To address this circumstance, the Board established goals for the T/I regulatory update to improve permitting efficiency for landowners and public agencies through incorporation of regulatory language that provides consistency with Fish and Game Code Section 1600 et seq., conformance with Regional Water Quality Control Boards permitting requirements, and consistency with DFG and NMFS species recovery plans and incidental take permit or take avoidance requirements. Amendments to address this circumstance for this section are primarily related to improving consistency with Regional Water Quality Control Boards laws and policies.

An additional problem is the expiration of the content in the section. The sentences of this section that became effective in July 2000 as a result of the Board's adoption of the T/I rules also contains an expiration date that if not amended would result in a portion of the rule being deleted. This would result in having an ineffective set of regulations for addressing watercourse protection intent of the Board.

### **NECESSITY**

The proposed amendments are necessary to improve consistency of the T/I rules with waterboard laws, goals, and policies to improve permitting and enforcement efficiency for landowners and public agencies. They also ensure that the public and reviewing agency understand the Board's intent regarding watercourse and lake protection in watercourses with listed species or CWA 303 (d) listed waterbodies. Revisions clearly convey the Board's intent to ensure water related values are fully protected and restore them where they are impaired.

The proposed amendments are also necessary to ensure an effective set of regulations for addressing intent and goals of watercourse and lake protection, and avoid expiration of portions of this section.

### **SPECIFIC PURPOSE OF THE REGULATION**

The introductory paragraph of the section on the purpose of the article is amended to become more consistent with water quality control laws and polices. This includes:

1. Porter -Cologne Act directives to address discharges that could (not will or would) affect the State's waters to Water Board regulation (CWC 13260(a)(1)).
2. Porter -Cologne Act directive to other State agencies to comply with State Water Board-approved water quality control plans (CWC 13247).
3. Porter -Cologne Act directive to other State agencies to comply with State Water Board-adopted water quality control Policies (CWC 13146), including:
  - 1) Resolution no. 88-63: Sources of Drinking Water Policy and
  - 2) Resolution no. 68-16: Policy With Respect to Maintaining the High Quality of Waters in California.

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4. The latter Policy must be applied in a manner consistent with the federal antidegradation policy (40 CFR 131.12) under the Clean Water Act.

Adding language to specifically state that operations “do not threaten to cause” and “threatened to cause violation of any applicable legal requirement” is more consistent with Porter -Cologne Act directives and reduces risk of projects affecting beneficial uses. Also, the word “riparian” is revised to “riparian-associated” to be more inclusive of the types of beneficial uses intended for protection and to be more consistent with use of this term in other portions of the FPRs.

Language is added at the end of the first paragraph to clarify that the intent of this section is to address requirements for TES listed species and 303(d) listed water bodies. Adding the language that specifically states that the “article also provides protection measures for...listed anadromous salmonids ... and watersheds ...under 303 (d) ...” provides clarity on specific purposes of this section.

Language in the second paragraph that changes the term “equal consideration” to “appropriate consideration” when describing the Board's intent for balancing beneficial uses and productivity of timberland improves consistency with Water Board laws and policies and compliance relative to State and Federal antidegradation policies for waterbodies not impaired. Because this intent section addresses both waters that are and are not 303(d)-listed, it adds consistency to provide broad statewide guidance for all situations (including those with impairment).

Language in the third paragraph that changes the term “adoption” to “all harvesting plans” because the phrase “adoption of” is unclear regarding the means by which the Board intends to achieve the objectives described. The proposed change clarifies that harvesting plans must comply with the stated objectives.

The proposed amendments in 14 CCR § 916 [936, 956] subsection (a) make more explicit that beneficial uses of water and riparian functions shall be maintained, protected and restored where they are impaired. This improves consistency with previously mentioned water quality control laws and policies, and address goals for environmental management.

The proposed amendments in 14 CCR § 916 [936, 956] subsection (b) specifies the Board’s intent to include “restoration” in the FPRs. The intent of the amendment is to specify that restoring habitat shall be a goal but only required to the extent feasible as defined in the FPRs. Timber operations, shall actively contribute towards restoration when feasible, but are not expected to achieve complete restoration of habitats or recovery of the species. Language is also added for consistency with Water Board laws and policies that require State agencies to comply with State Water Board-adopted water quality control Policies (CWC 13146). This language addresses the goal for legal compliance.

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The proposed amendments in 14 CCR § 916 [936, 956] subsection (b) (1) eliminates redundancy with 14 CCR §§ 916.3 [936.3, 956.]. This sections already substantively includes requirements being proposed for deletion from 14 CCR § 916 [936, 956] subsection (b) and it is not necessary to repeat them.

The proposed amendments in 14 CCR § 916 [936, 956] subsection (c) provides additional consideration for protection measures needed for areas outside of riparian zones that may adversely impact riparian zones. Operations on areas outside of WLPZ, ELZ, or EEZ may have substantial effects on aquatic and riparian habitat, for example through contribution to slope failures. Plans should give equal consideration to aquatic and riparian habitats regardless of the location of operations.

The proposed amendment in 14 CCR § 916 [936, 956] subsection (e) deletes the expiration date for these portions of the section.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing watercourse crossings that are necessary to meet the goals of fish providing passage and disclosure for effective enforcement of the rule.

2. Do not include consistency with other laws and policies and intent to promote restoration of habitats.

This alternative was rejected as it would not address the public problem and would result inconsistency with joint Board and DFG anadromous salmonid policy and not contribute to consistency with Water Board laws and policies. This would result in a continuation of duplicative regulatory systems and not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The Board has determined that there are potential costs for associated with this regulation, but the impact cannot be estimated. The additional cost impacts are related to the extent that actions are taken within a Plan to contribute to restoration of habitat. Since the requirement for habitat restoration is limited the extent “feasible,” as defined in the FPRs, this indicates that there is a limit to extent of economic impact to any one plan. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916 [936, 956] are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.2 [936.2, 956.2]**

**Protection of the Beneficial Uses of Water and Riparian Functions**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

Efforts to protect and improve salmonid riparian habitat and the multiple benefits it provides, has been promoted as a key strategy for maintaining and restoring the critical processes that create and maintain fish habitat (Beechie and Bolton 1999; Roni et al. 2002). Long-term conservation of salmonids requires protecting not only the immediate functions that riparian vegetation provides, but the ecological conditions within the riparian zone needed to maintain natural vegetation communities (e.g. soil productivity, microclimate) as well (Spence et al.1996). Although riparian buffers alone are insufficient to ensure healthy salmonid communities, there is consensus in the scientific community that protection of riparian ecosystems should be central to all salmonid conservation efforts on both public and private lands (FEMAT 1993; Murphy et al.,1995). In consideration of the need to protect and restore salmon habitat, the Board established goals and objectives for the T/I regulatory update to promote achievement of properly functioning salmonid habitat, contribute to recovery of salmonid species, and restoration of salmonid habitats.

An additional problem is the expiration of the content in the section. The sentences of this section that became effective in July 2000 as a result of the Board’s adoption of the T/I rules also contains an expiration date that if not amended would result in a portion of

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the rule being deleted. This would result in having an ineffective set of regulations for addressing beneficial uses of water and riparian function.

### **NECESSITY**

The T/I regulations need to have a comprehensive set of protective regulations that are clear and consistent throughout the various section of the FPRs. The framework needs to have consistent language for goals and intent sections and these goals need to be reflected in the operational requirements and standards for watercourses.

The Board has indicated its intent to include “restoration” in the FPRs. Revisions to the FPRs are needed to ensure uniform inclusion of restoring habitat as a goal, and a consistent understanding of the term. That understanding will convey that timber operations shall actively contribute towards restoration when feasible, but are not expected to achieve complete restoration of habitats or recovery of the species.

The proposed amendments are also necessary to ensure an effective set of regulations for addressing restoration goals, and avoid expiration of portions of this section.

### **SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments in 14 CCR § 916.2 [936.2, 956.2] subsection (a)(2) provide for comprehensive protection for all potential values of watercourses. The term “existing and restorable” is proposed to ensure all existing or potential beneficial uses, such as future suitable habitat for listed anadromous species, are protected. Adding the term “existing” provides for the full suite of beneficial uses related to salmonids be addressed, including habitat. It also conforms to goal language in 14 CCR § 916.2 [936.2, 956.2] subsection (a)(1).

The proposed amendments in 14 CCR § 916.2 [936.2, 956.2] subsection (a) (3) add consistency of terminology. The term “beneficial functions of riparian zones” is defined in the FPRs and replaces the undefined terms “riparian habitat”. The term “beneficial functions of riparian zones” is used in other sections and adding the term here provides for consistency in use of definable terminology.

Amendments to this section also contribute to ensuring a comprehensive set of intent statements are in place to address beneficial functions of the riparian zone for all T/I and non T/I watershed settings. If the values of the beneficial functions of riparian zone are different between T/I and non-T/I areas, then adding reference to 14 CCR § 916.9 [936.9, 956.9] provides additional specificity for which beneficial functions need to be protected.

The proposed amendments in 14 CCR §§ 916.2 [936.2, 956.2] subsection (a) (4) are for citation format consistency throughout the FPRs.

The proposed amendments to the closing paragraph in 14 CCR § 916.2 [936.2, 956.2] subsection (a) affirms the Board’s intent to achieve restoration through implementation of

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the FPRs. The intent of the amendment is to specify that restoring habitat shall be a goal, but only required to the extent feasible as defined in the FPRs. Timber operations shall actively contribute towards restoration when feasible, but are not expected to achieve complete restoration of habitats or recovery of the species.

The proposed amendments in 14 CCR § § 916.2 [936.2, 956.2] subsection (b) provide for consistency and clarity of terminology. The term “appropriate minimum” is a confusing double descriptor. “Appropriate” is all that is needed to allow review of the proposed mitigations. By eliminating the term “minimum,” standards are singularly defined as appropriate and can be more or less than the minimum standards stated in the FPRs.

The proposed amendments in 14 CCR § § 916.2 [936.2, 956.2] subsections (b) and (c) address consistency of application of T/I rules. Reference to 14 CCR § 916.9 adds the T/I rules to the list of appropriate protection measures that are to be considered as protective measures for watershed values.

The proposed amendments in 14 CCR §§ 916.2 [936.2, 956.2] subsection (c) specifies that appropriate measures for maintenance and protection are those which are necessary and sufficient to achieve the desired goal, not just those that are “feasible.” However, it further qualifies that additional measures taken to contribute to restoration of riparian beneficial functions are those that are feasible. The amendment intent is to specify that restoring riparian beneficial functions that support salmonid habitat shall be a goal but only required to the extent feasible as defined in the FPRs. Timber operations shall actively contribute towards restoration when feasible, but are not expected to achieve complete restoration of habitats or recovery of the species.

The proposed amendment in 14 CCR § § 916.2 [936.2, 956.2] subsection (d) deletes the expiration date for these portions of the section.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing the goal for protection of the beneficial uses of water and riparian functions.

3. Not include intent to promote restoration of habitats.

This alternative was rejected as it would not address the public problem and would result in inconsistency with the joint Board and Fish and Game Commission anadromous salmonid policy. This result would not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

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In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The Board has determined that there are potential costs associated with this regulation, but the impact cannot be estimated. The additional cost impacts are related to the extent that actions are taken within a Plan to contribute to restoration of beneficial uses and riparian beneficial functions. Since the requirement for such is limited to the extent “feasible”, as defined in the FPRs, this indicates that there is a limit to the extent of economic impact to any one Plan. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.2 [936.2, 956.2] are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.5 [936.5, 956.5]**

**Procedures for Determining Watercourse and Lake Protection Zones Widths and Protective Measures**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9]. Also, this section references the section name for 14 CCR § 916.9.5 [936.5, 956.5] subsection (e) as “watersheds with threatened for impaired values”. This is the existing name of this section is proposing this amendment to be renamed as “watersheds with listed

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anadromous salmonids”. Retaining an outdated subsection title in 114 CCR § 916.9.5 [936.5, 956.5] subsection (e) would result in an unenforceable subsection of rules with no clarity regarding intention of the section.

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.5 [936.5, 956.5] subsection (e) edit titles change the reference is in the subsection from “watersheds with threatened for impaired values” to “watersheds with listed anadromous salmonids” for clarity and enforceability.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing watercourse and lake protection zone standards and protective requirements.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

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The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9.5 [936.5, 956.5] subsection (e) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9]**

**Protection and Restoration in Watersheds  
with Threatened or Impaired Values**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

In 1995, the California Department of Forestry and Fire Protection issued a report indicating that, when considered as a whole, the Board's rules were generally effective in protecting water quality. However, the report identified outstanding issues related to winter period operations, Class III watercourse protection, and the restorable uses of water for fisheries (CDF, 1995).

Additionally, a comprehensive review of the FPRs, with regard to their adequacy for the protection of salmonid species, was prepared for the Resources Agency of California and the National Marine Fisheries Service in 1999 (Ligon et al. 1999). Following an extensive review of the regulations, "The SRP concluded the FPRs, including their implementation (the 'THP process'), do not ensure protection of anadromous salmonid populations" (Ligon et al. 1999).

To address these situations, the Board adopted changes to the FPRs under a previous rulemaking package (Protection for Threatened and Impaired Watersheds, 2000, OAL File No. Z00-0118-14). This action initially established the T/I rules. These rules were adopted to enhance protection of anadromous salmonids and their habitat. Specific objectives of these rules include protection of instream spawning and rearing habitat, migratory routes, stream flow, adequate numbers of large trees for recruitment of large woody debris, vegetative canopy, shade, and daily and seasonal water temperatures.

While these interim regulation made substantial improvements in providing sufficient protection for listed anadromous salmonids, the National Marine Fisheries Service, the agency responsible for administering the Federal Endangered Species Act, declared in a Federally Register publication (FR 36074, Vol. 65, No. 110, June 7, 2000), that the T/I rules were inadequate to protect the species' habitat. Concurrently, forest industry representatives indicated the interim T/I regulations adopted in 2000 did not reflect the full breadth of scientific information and were unnecessarily burdensome.

Anadromous salmonid populations have declined and remain at historically low levels during the period of the T/I interim rules (2000 to 2009). These widespread decrease in the abundance have been attributed to the combination of a variety of factors. One factor that continues to be identified is the loss and degradation of suitable habitat conditions in

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river systems for the rearing of juveniles and spawning of adults. Numerous studies have shown that forest management practices can have significant adverse effects on the habitat conditions of anadromous salmonids through, for example, loss of riparian vegetation, increased input of fine sediments, effects on shading and stream temperature regimes, reduction of future large woody debris, and altered nutrient input to the stream.

To address these situations, recent science information was evaluated by the Board to better inform an appropriate set of rules that provide for protecting and restoring the species and the species' habitat. The literature review was overseen by a Board appointed Technical Advisory Committee and conducted by highly recognized professional scientists. The results of this literature review, along with other contemporary and well established scientific information, are the basis for the proposed requirements of this section.

An additional problem is the expiration of the content in the section. The entire section contains an expiration date that if not amended would result in this section being deleted. This would result in having an ineffective set of regulations for addressing anadromous salmon species.

### **NECESSITY**

The proposed changes to the language under 14 CCR §§ 916.9 [936.9, 956.9] et seq. and the companion regulations in 916.11 [936.11, 956.11], 916.12 [936.12, 956.12], 923.3[943.3, 963.3], and 923.9 [943.9, 963.9] are intended to ensure continued application of appropriate regulations and measures pertaining to protection of anadromous salmonids. These changes are specifically intended to improve the scientific validity of the T/I rules and to provide clarity to landowners, plan preparers, and agencies in determining how to apply the regulations when anadromous salmonid species are present or the when the watershed is restorable for the species.

### **SPECIFIC PURPOSE OF THE REGULATION**

Three issues are central to the purpose of the proposed regulations in the introductory language in 14 CCR § 916 .9 [936.9, 956.9]:

1. Development of a set of regulations specifically for the anadromous salmon species designated as threatened or endangered species under the State or Federal Endangered Species Acts (i.e. listed anadromous salmonid).
2. Clarity and regional variation of the geographic scope of the T/I rules.
3. Regulations for non T/I watersheds for purposes of reducing significant adverse impacts from transported fine sediment from upstream areas.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] under the heading "Geographic Scope" is included to clarify which planning watersheds are

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intended to be protected by the rules of this section. The new title and preamble clarifies that the focus of this section are goals and regulations for watersheds with “*listed*” anadromous salmonids, which means those listed under the state and or federal Endangered Species Act.

This amendment results in disconnecting the section from requirements for CWA 303(d) listed impaired watersheds. The term “impaired” is deleted in 14 CCR § 916.9 [936.9, 956.9] with the intention to specifically address the species and beneficial functions of the riparian zone. While these revised rules for listed species may be similar to requirements for CWA section 303 (d) impaired waterbodies, the requirements for these 303 (d) waterbodies has been collated in 14 CCR § 916.12[936.12, 956.12]. The term “beneficial function of riparian zone” is added as this is a defined term in the FPRs and provides uniformity for Board's intention for salmonid species and salmonid habitat protection.

The amendments to this section reaffirm the geographic scope of the proposed regulation. The T/I rules apply to non-federal timberlands where a commercial timber harvesting “plan” has been submitted to the California Department of Forestry and Fire Protection (CAL FIRE) and where listed salmonid species are present or the watershed is restorable for the species. Specifically, the T/I rules apply to all planning watersheds within the “listed range “of any salmonid species where the species is present in the watershed or where the watershed is determined to be restorable for the species. (see Map 1). The current depiction of the specific watersheds within the listed range where there is known anadromy is shown in Map 2. Many of the watershed shown in Map 2 are on non federal private timberlands and would be subject to the proposed T/I rules. This area covers hundreds of thousand of acres of timberland in primarily the northern, coastal and central coast areas of California.

Private commercial timberlands which have certain (other) permits, such as Habitat Conservation Plans (HCPs) that provide for protection of the salmonids, are excluded from the T/I rules. This results in many of the large timberland owners in the northwest portion of the state being excluded from the T/I rules as these owners have valid HCPs or related plans which provide the necessary protections. These excluded ownerships are not depicted on the enclosed maps.

The T/I rules also provide “regionally specific” rules, meaning there are different rules for two different areas within the larger listed range boundary. These regional rules are proposed because there are differences in the habitat needs of different salmonid species and there are substantial “hydro-geomorphic” differences within the geographic scope of the T/I rules. One regional area where different rules apply is defined as the “Watersheds in the coho salmon Evolutionary Significant Unit,” or coho ESU. Inside this area the prescriptive standards for WLPZs permit less harvesting close to watercourses and require wider buffer strips. This reflects the unique life history needs of salmonid species in this area (such as coho), their habitat needs, and the regional forest characteristics within the area. Outside the coho ESU, different T/I timber operation rules apply with different harvesting and buffer strip requirements that reflect the salmonid life history and habitat needs and forest characteristics found outside the coho ESU area.

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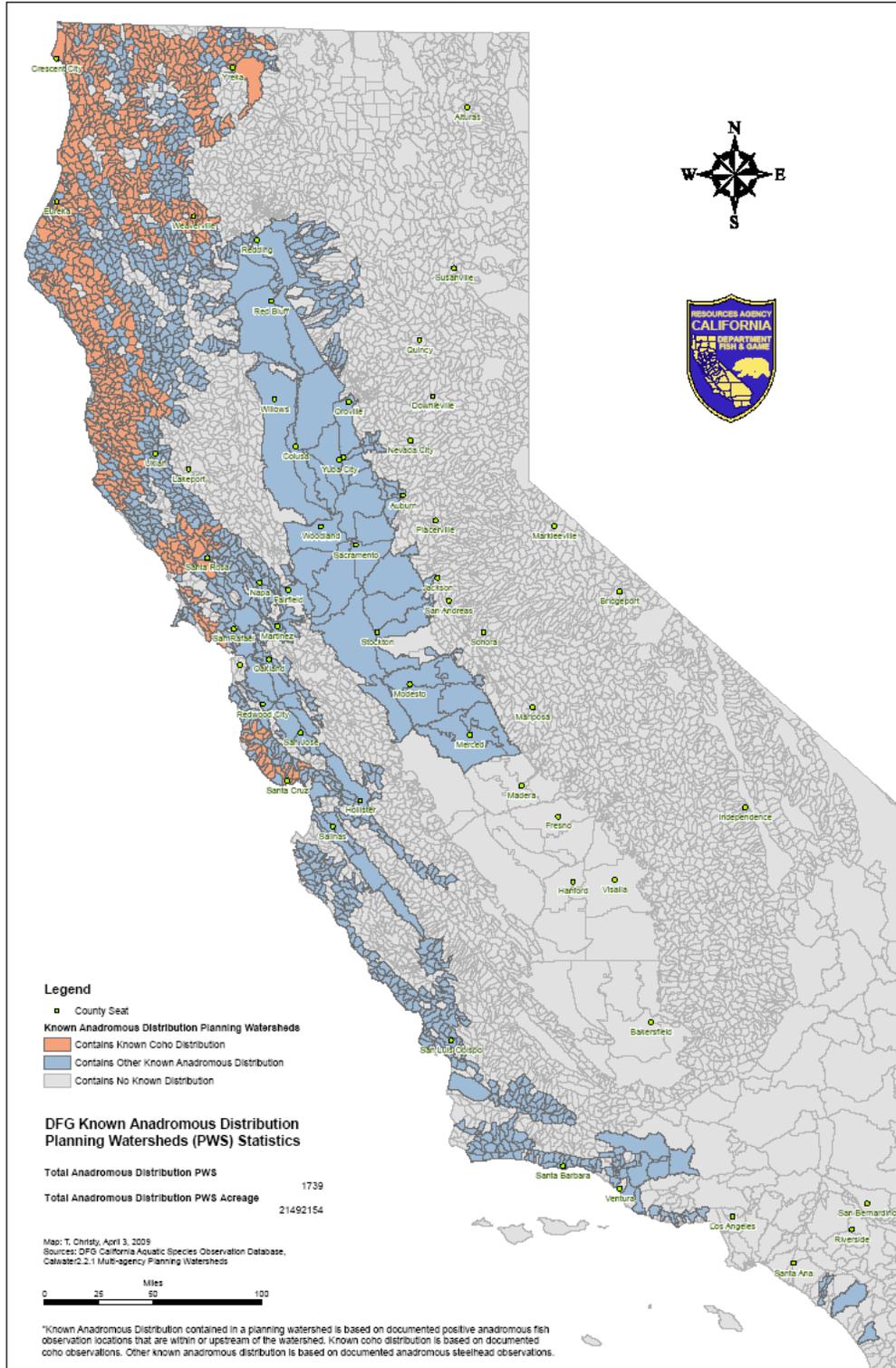
Map 1: Geographic scope of the T/I rules-Current salmonid listed range



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**Map 2: Watersheds with known anadromous salmonmids**

DFG Known Anadromous Distribution Planning Watersheds - 2009\*



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The proposed T/I rules cover the same overall acreage of land applicable for the rules in this proposal (compared to the existing T/I rules), with one exception. This subsection adds fine sediment movement regulations of the T/I rules (14 CCR §§ 916.9 [936.9, 956.9] subsections (k)-(r), 923.3 [943.3, 963.3] and 923.9 [943.9, 963.9] to address potential fine sediment delivery from watersheds that do not have T/I regulations that are located upstream from watersheds with listed anadromous salmonid species. These upstream watersheds, although being in the listed range of a TES salmonid species, typically are not required to implement the full suite of proposed T/I rules because T/I rules apply only to planning watersheds where listed salmonids are present or conditions are restorable. If an on-site suitability assessment determines the planning watershed does not have species present, or the planning watershed is not restorable, then some planning watersheds within the official federally/state listed range are excluded from the T/I rules. This definition would require certain fine sediment mitigation rules to be applied to those excluded watersheds in the federally/listed listed range.

This fine sediment regulation applied to non T/I watersheds in the listed range is necessary to prevent adverse affects on salmonids from downstream flow of fine sediment. This provision recognizes the science information that indicates fine sediment is capable of being transported long distances (6 miles or more) and activities in watersheds directly upstream from T/I watersheds should have similar fine sediment prevention regulations as those watersheds that have listed salmonids present.

The proposed regulation also provides for additional upstream watersheds to be subject to the fine sediment road related regulations. If a cumulative impacts assessment is made and watersheds beyond those immediately upstream from a T/I watershed are found to be contributing significant amount of fine sediment, then the fine sediment related regulations of the T/I rules (14 CCR §§ 916.9 [936.9,956.9] subsections (k)-(r), 923.3[943.3, 963.3] and 923.9 [943.9, 963.9] ) would also apply.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing goal for protection of the beneficial uses of water and riparian functions.

2. Not include the application of fine sediment rules to “upstream” non T/I watersheds.

This alternative was rejected as it would not address the public problem and would result in inconsistency with science findings and would not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

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**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The Board has determined that there are potential costs for associated with this regulation related to the implementation of the fine sediment mitigation rules for “upstream” non T/I watersheds. Imposition of these rules will result in an expansion of the land base to which existing T/I rules found in 14 CCR §§ 916.9 [936.9, 956.9], subsections (k)-(r), 923.3 [943.3, 963.3] and 923.9 [943.9, 963.9] apply. The economic impact cannot be reasonably estimated. However, these requirements are routinely implemented or required in other sections of the FPRs or through enforcement by Regional Water Boards, and likely do impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR 916.9 are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9](a)**

**Goals**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

## **SPECIFIC PURPOSE OF THE REGULATION**

This subsection establishes broad goals and objectives for T/I watersheds to prevent significant adverse impacts to the species and address limiting factors (i.e. sediment loads, thermal loads that increase water temperature etc.).

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (a) are for consistency with the California Environmental Quality Act (CEQA). The amendments provide clarity and specificity for which environmental conditions or impacts the T/I rules address under CEQA. For consistency with CEQA, the term “deleterious interference” is deleted. For clarity with the language used in the other goals in this section, the reference to values in 14 CCR § 916.2 [936.2, 956.2] is deleted. The values in 14 CCR § 916.2 [936.2, 956.2] are not necessarily related to fisheries. This section should be clear about the strategy for protecting listed salmonid species.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (a)(1) are for consistency of intent language. It eliminates unnecessary/redundant language. It further provides clarity of goals and maintains the consistency of using “limiting factors” as the focus of enhanced fisheries protections and implying a restoration goal. The first goal should be split and moved to 14 CCR 916.9 [936.9, 956.9] subsection (a)(2) since not all TMDLs address sediment.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (a)(2) provides clarity of objectives. A separate objective is created from objective number one above since not all TMDLs address sediment. The term “measurable” is deleted because, while current instrumentation can detect small changes in sediment loads, these changes may not be significant impact to listed anadromous salmonid species.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (a)(3)-(5) provide for consistency with CEQA by deleting the term “measurable” because with current instrumentation, measurable bank stability, migratory route blockage, and streamflow reduction may be documented that is not significant to listed salmonid fish species. It replaces the “measurable” term with “significant”, which is typically used in the CEQA context.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsections (a)(6) and (7) are included to provide for rule indexing reference consistency with standards proposed for large woody debris.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (a)(7) (A) eliminate redundant objectives by refining “shade” and “nutrient” objectives based on TAC science findings. The addition of temperature controls specific to anadromous salmonids sets a very specific standard for protection or restoration of the vegetative canopy. By combining the proposed language in (7) (A), subsection (7) (B), (7) (C) and (7) (D) become redundant and are deleted.

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The proposed changes to the language in 14 CCR § 916.9[936.9, 956.9] subsection (a)(8) and 14 CCR § 916.9 [936.9, 956.9] subsection (b) are for consistency with CEQA standards. The term “substantial” is deleted and replaced with the term significant, which is routinely used in the CEQA context. Also, the term “appropriate” is deleted for consistency with CEQA standards.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include edits.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing the goals and objectives of the T/I rules.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9 [936.9, 956.9] subsection (a) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9](b)**

**Pre plan adverse cumulative watershed effects**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

This subsection includes requirements to assess adverse watershed effects that exist prior to timber operations. The subsection adds specificity for details that need to be incorporated into cumulative impact assessments pursuant to 14 CCR §§ 898, 912.9 [932.9, 952.9] and the Board of Forestry Technical Rule Addendum No.2, Cumulative Impact Assessment.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (b) is for consistency with CEQA standards. The term “appropriate” is deleted for consistency with CEQA standards. The proposed amendments under 14 CCR § 916.9 [936.9, 956.9] subsection (b) also adds a title to the subsection and is a non-substantive change.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include edits.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing cumulative impacts.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

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In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9 [936.9, 956.9] subsection (b) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (c)**

**Objectives for timber operations or silvicultural prescriptions in WLPZs.**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (c) clarifies and documents the Board's intent for timber operations in any WLPZ within the scope of the T/I rules. It deletes the reference to any specified WLPZ width or class of watercourse to ensure that the objectives apply to all WLPZ situations.

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The proposed amendments delete the existing text related to additional special operating zone and reinsert it in 14 CCR § 916.9 [936.9, 956.9] subsections (f) (2) (D) and (f) (5) (E). It is modified in the reinserted section to reflect results of the scientific literature reviewed by Sound Watershed Consulting (SWC) for the Board in 2008, which provided limited evidence that the special operating zone required in this section are necessary for contributing to properly functioning salmonid habitat. It was also revised based on field observations by DFG to reduce direct solar radiation to the watercourse under specific, limited situations.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (c) (1) add objectives for the “Core Zone” of the WLPZ, which is the area closest to the stream’s channel. The scientific literature states that the riparian zone closest to the channel is critical for providing adequate large wood recruitment, shading, and channel bank stability. Benda (2008) reported that bank erosion is usually the principle source of “key pieces” of large wood, and that selective harvest can threaten that source. Benda’s (2008) diagram for coastal forests shows that, on average, 50% of cumulative wood recruitment comes from the first 25 feet. The use of a core zone is also supported by the CH2M-Hill and Western Watershed Associates (1999) review of root strength. Their review included information that root strength protecting stream channels comes from a distance equal to ½ a mature tree crown diameter (stated as ~30 feet or less for coast redwood trees in the Riparian Protection Committee (RPC) Report (Cafferata et al. 2005). The RPC Report states that if no harvesting is proposed in this zone, it is possible to conclude that little if any change in bank stability would be anticipated (particularly for a laterally stable channel network).

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection(c) (2) add objectives for the “Inner Zone” of the WLPZ, the middle zone contiguous to the Core Zone. Scientific literature reviewed by Sound Watershed Consulting (SWC) for the Board in 2008 stated that to facilitate long-term recruitment of large wood loading in streams, management should encourage the development and retention of large trees in the near stream riparian zone. For watersheds in the coho salmon ESU, the 30 to 100 ft high Inner Zone basal area and canopy retention zone is supported by Benda’s Technical Expert Forum (TEF) presentation (October 2008) and Benda’s (2005) buffer design strategy for large wood recruitment figure. Benda’s (2008) diagram for the coast region for old forests shows slightly more than 90% cumulative effectiveness for wood recruitment coming from the first 100 feet. Additionally, Benda’s (2008) diagram for coastal California forests shows that 40% of large wood recruitment comes from an inner band located from 25 to 100 ft from the edge of a bankfull channel. Benda (2008b) states that 100% wood recruitment would require a zone of 170 ft.

The Inner Zone width for non-coho salmon ESU planning watersheds is reduced 30 feet from that required for the coho salmon ESU (spanning a distance from 30 to 70 feet from the watercourse transition line), based on Benda’s research conducted in interior parts of California. Benda (2003) reported that for the interior sites he inventoried (Lassen, Weaverville area, Judd Creek [Southern Exposure], Bailey Creek, Millseat, etc.), 90% of wood recruitment came the first 60 feet from the stream. Benda’s (2008a) TEF wood recruitment diagram shows that 90% of cumulative wood recruitment for old Sierra and

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mature Klamath forests comes from approximately 70 ft. Benda et al. (2003) report that 90% of conifer wood from the Klamath Province and Cascade Range comes from approximately the first 70 ft (20 m).

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (c) (3) add objectives for the “Outer Zone” of the WLPZ, the area further from the stream that is contiguous to the Inner Zone. The outer zone is primarily for wind resistance for buffering the buffer and preventing tree blowdown or windthrow (Mitchell 1998, Kelsey and West 2001), wood recruitment from the outer mortality zone (Benda 2008a), microclimate control for purposes other than limiting water temperature change (Brososke et al. 1997, Pyles et al. 2002), and providing habitat for wildlife species (Kelsey and West 2001).

There are conflicting opinions in the literature regarding the value of buffering the buffer strip along a stream channel to reduce windthrow. Kelsey and West (2001) state that as the probability of windthrow increases, greater protection for riparian trees is needed. They say that this can be accomplished by increasing the width of buffer strips and establishing areas of selective harvest along the buffer, and by gradually decreasing density of trees through selective cutting, the landowner derives economic benefits while at the same time protecting the riparian corridor. Steinblumes (1977) reported that topography and uncut timber stand protection are the most important factors modifying the amount of windthrow in Oregon buffer strips. The distance from the outer edge of the buffer strip to the cutting line in the direction of damaging winds was the most important variable influencing buffer strip survival, with increasing distances leading to poorer survival. Steinblumes et al. 1984, Ruel et al. 2001 and Drake 2008, however, did not find a significant relationship between buffer strip width and tree stability related to windthrow, and the latter two studies did not find a relationship between buffer thinning and windthrow. Drake (2008) did not observe a difference in windthrow with varying thinning treatments of neighboring stands. Drake (2008) states that the effectiveness of the neighboring forest’s ability to shelter the buffer strip likely depends to a large extent on the residual thinning density, age, species present, and height of the stand. Rhodes et al. (1994, as cited in Spence et al. 1996) suggest that buffers need to extend to a distance of two site-potential tree heights (or > 91 m) to protect riparian buffers from windthrow.

Windthrow is likely a larger issue for coastal California buffer strips than for interior areas of the state (see for example, Surfleet and Ziemer 1996), and a more extensive outer zone is required for the coho salmon ESU planning watersheds. Additional information in the scientific literature supports the need for outer zone objectives in the proposed rule, particularly for the coho salmon ESU area. Pyles et al. (2002) suggest retaining 50% overstory canopy in the outer 100-150 foot band of a Class I coast riparian management zone for protection of amphibian habitat. Benda’s (2008) source distance curve for large wood recruitment shows that, on average, limited (10%) input is derived from the outer zone (100-150 feet) in the coastal mountains with mass wasting.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (c) (4) add objectives for the Large Class II watercourses (Class II-L). Class II-L

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watercourses can supply water and nutrients to a Class I watercourse at least up to the month of July during an average hydrologic year, can supply coarse and fine sediment to the Class I channel, and may be able to supply wood of a size that would function as large wood for the Class I watercourse. Large wood recruitment to the Class II-L channel itself is also critical. The literature is clear that wood is required in small headwater streams to maintain a variety of riparian functions. For example, large wood plays an important role in modifying channel hydraulics, increasing sediment storage, and decreasing the rate of sediment transport in headwater channels (Megahan 1982; Chesney, 2000; May and Gresswell 2003; Gomi and Sidle 2003, Hassan et al., 2005). A reduction of large wood loading in these channels will result in direct coupling between the fine sediment inputs into headwater reaches and the delivery of this sediment to Class I fish-bearing watercourses. Therefore, it is necessary to have appropriate practices for large wood recruitment for both the Core and Inner Zones for adequate long-term wood input to watercourse channels for Class II-L watercourses.

Adequate shade retention and high numbers of large conifer trees for large wood recruitment are required for large Class II watercourses, since watershed products such as heated water, wood, and fine sediment can be transported into fish-bearing Class I watercourses from these reaches. Since these watercourses are not fish-bearing, however, it is appropriate to have the standards in this secondary zone for wood and shade retention somewhat lower than for Class I watercourses.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (c) (5) add objectives for reducing catastrophic wildfire in WLPZs. Information of the potential significant adverse environmental impacts of wildfire are well documented (Agee, et al.). Providing for fuel hazard reduction activities in high risk areas is appropriate, and when done in a manner consistent with riparian function protection, is an objective included by the Board for ensuring sustainable riparian areas.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (c) (6) add objectives for contributing to restoration of properly functioning salmonid habitat. This is consistent with the Board's goals in 14 CCR § 916.9[936.9, 956.9] subsection (b) that specifies the Board's intent to include "restoration" in the FPRs. The intent of the amendment is to specify that restoring habitat shall be a goal but only required to the extent feasible as defined in the FPRs. Timber operations, shall actively contribute towards restoration when feasible, but are not expected to achieve complete restoration of habitats or recovery of the species. It is also consistent with the joint policy statements adopted in 2009 by the Board and the Fish and Game Commission for recovery of anadromous salmonids.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Not include objectives in the proposed regulation.

This alternative was rejected as it would not address the public problem and would result in having an ineffective and unclear set of regulations for addressing goal for protection

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of the beneficial uses of water and riparian functions. It would also result in inconsistency with science findings and would not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for describing objectives for timber operation in WLPZs.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose specific requirements for timber operations in this section and do impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9 [936.9, 956.9] subsection (c) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9](d)**

**Measures to offset adverse watershed  
effects**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

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**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (d) adds a title to the subsection and is a non-substantive change.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include edits.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of the beneficial uses of water and riparian functions.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing offsets to watershed effects. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

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The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9 [936.9, 956.9] subsection (d) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR §§ 916.9 [936.9, 956.9] (e)**

**Channel Zone Requirements**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (e) clarify relevant activities excluded from the channel zone. The first sentence refers to no timber operations except as specified in (A)-(F). However, exceptions (A), (B), (C), and (D) are limited to timber harvesting which is not defined and can be interpreted to mean only cutting and removal of trees. It is more appropriate to use the term “actions” that could permit a broader set of activities such as watercourse crossing construction without cutting trees or in-stream debris jam removal upstream of a county road culvert.

The exception in 14 CCR § 916.9 [936.9, 956.9] subsection (e) (1) (E) is reworded for clarity of intent and to be consistent with Class III watercourse harvesting requirements in 14 CCR § 916.9 [936.9, 956.9] subsection (h). Limited harvesting may be permissible in the Class III channel zones when conducted consistent with 14 CCR § 916.9 [936.9, 956.9] subsection (h) (7), which requires “*Retain all trees in the ELZ and channel zone, excluding sprouting conifers that do not have boles overlapping the channel zone, which show visible indicators of providing bank or bed stability*”.

One new additional exception (14 CCR § 916.9 [936.9, 956.9] subsection (e)(1)( F)) is also needed to facilitate watershed improvement or remediation activities such as removal of old, inadequate/high risk watercourse crossings or landings, repairing watercourse diversions, stabilizing eroding channels or channel banks. This change is also needed to aid in compliance with 14 CCR § 916.9 [936.9, 956.9] subsection (o), addressing active erosion sites. Subsection (C) was amended to broaden the exceptions for infrastructure facilities to ensure services for the public or private enterprises are not interrupted.

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The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (e)(2) adds language consistent with existing FPRs pertaining to a supervised designee acting on behalf of an RPF.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Not include amendments to the channel zone timber operations exception.

This alternative was rejected as it would not address the public problem and would result in having an ineffective and unclear set of regulations for addressing the goal for protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing channel zone timber operations.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9 [936.9, 956.9] subsection (e) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR §§ 916.9 [936.9, 956.9] (f)**

**Class I watercourses**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (1)-(5) are the proposed amendments for Class I watercourses. They delete and replace existing 14 CCR § 916.9 [936.9, 956.9] subsections (f), (h), (g) and (i). The proposed amendment addresses requirements for:

- Information and documentation about proposed actions in Class I watercourses (14 CCR § 916.9 [936.9, 956.9] subsection (f)(1);
- Harvesting prescriptions and operational requirements for Class I watercourses with confined channels in watersheds in the coho ESU (14 CCR § 916.9 [936.9, 956.9] subsection (f)(2);
- Harvesting prescriptions and operational requirements for Class I watercourses with flood prone areas and/or channel migration zones (14 CCR § 916.9 [936.9, 956.9] subsection (f)(3);
- Site specific harvesting plans and operational requirements for Class I watercourses with flood prone areas (14 CCR § 916.9 [936.9, 956.9] subsection (f)(4); and
- Harvesting prescriptions and operational requirements for Class I watercourses with confined channels outside of watersheds in the coho ESU (14 CCR § 916.9 [936.9, 956.9] subsection (f)(5).

**Information and documentation about proposed actions in Class I watercourses.**

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(1) replaces the existing rule language in 14 CCR § 916. [936.9, 956.9] subsection (h) with minor re-organization changes. The term *biological characteristics* is added to

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subsection (f) (1) to indicate that these rules do not apply to Class I watercourses that are classified based on the presence of domestic water supplies and are not fish bearing.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(1)(E) ensures any proposed harvesting in a WLPZ in T/I watersheds is conducted and clearly analyzed to promote salmonid habitat goals and objectives in 14 CCR § 916.9 [936.9, 956.9] subsections (a) and (c). Content and type of documentation and analysis are specified and are to be accomplished as is currently specified by 14 CCR § 916.4 [936.9, 956.9] subsection (a).

**Harvesting prescriptions and operational requirements for Class I watercourses with confined channels in watersheds in the coho salmon ESU.**

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) establish harvesting prescriptions, WLPZ width, and operational requirements for Class I watercourses with confined channels in watersheds in the coho ESU. Rules specific to the coho salmon ESU were added to provide a definable geographic boundary that 1) includes the Klamath Province watersheds, and 2) provides precaution for the most imperiled coho salmon species by ensuring the greatest buffer widths and operational limitations supported by scientific literature are used.

To determine the appropriate set of regional rules and evaluate variations of habitat and geologic conditions for the T/I rules, the Board appointed a Technical Advisory Committee to oversee a science literature review and used other scientific literature to evaluate the wide variation in California's bioregions. Assessments made as a result of this information indicated bioregional differences in terms of physical, climate and species distribution.

California's coastal zone has larger trees, more mass wasting, higher hillslope erosion rates and stream channel sediment loads, greater precipitation, and stream channels that are dependent on large wood for adequate fish habitat formation. The Sierra Nevada and Cascade Range provinces generally have smaller trees, less mass wasting, lower erosion rates and channel sediment loads, lower overall precipitation with a higher percentage from snow, steeper bedrock/boulder controlled channels, and more long term erosion related to wildfire. The Klamath Province has physical and biological parameters that are between the Coast Range/Sierra Nevada-Cascade Provinces. It has mass wasting in its western component, more fire influence than the coast, rain-on-snow events that cause floods, and intermediate sized trees. Regionally based rules are proposed to address these variations. Additionally, using the coho salmon ESU as a boundary for the revised T/I rules provides a conservative approach—including the Coast Range, Klamath Range, and a minor component of the Cascade Province, since it requires applying higher standards to terrain that is largely more erodible than the non-coho salmon ESU area.

The coho ESU region was also established because of the unique habitat requirements of this species and its current imperiled population status. The population viability of coho salmon is the result of many factors affecting the species, and not solely related to forest

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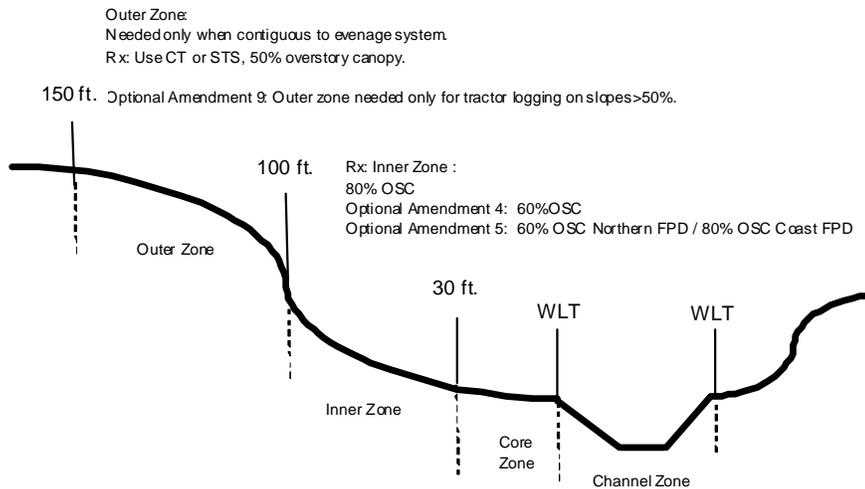
habitat conditions. Nonetheless, the coho ESU specified in this proposal contains a State and Federally listed fish that is on the verge of extirpation. Currently, coho salmon numbers in California are at historic lows. NOAA Fisheries reported in February 2008 that coastal coho populations plunged 73% compared with the previous spawning season, and in April it said extinction may be close at hand. NOAA staff has prepared an administrative review draft for a coho recovery plan that provides detailed information on the current status of coho salmon in California. Moyle et al. (2008) state that the findings of Bucklin et al. (2007) suggest that most Central Coast coho (CCC) populations are in a state of collapse from which recovery will be difficult. Given these factors, addressing the unique needs of the species is high priority.

This subsection establishes initial requirements for a WLPZ width of 100 to 150 feet. This standard is derived from several sources. Belt et al. (1992) state that a maximum protection approach is to evaluate each of the riparian function criteria in terms of buffer strip width, and then adopt the greatest width so as to accommodate all criteria. Benda et al. (2003) state that recruitment patterns of wood can be used to design buffer strip dimensions. Many studies support the contention that the wood recruitment subsumes other riparian processes (except for sediment from roads) in terms of appropriate zone width (Benda 2008a, 2008b), and that most large wood is recruited from within 20 m (66 ft) to 40 m (130 ft) of channel banks [note that wood recruitment source-distance curves are highly related to input process (Naiman et al. 2000, Benda et al. 2003, Benda and Associates 2004)]. Spence et al. (1996) state that a protected buffer of approximately one site potential tree (in most Pacific Northwest forests, this equates to 30-45 m) provides 90 to 100% of inputs from a properly functioning riparian corridor. They report that buffer widths of approximately 0.75 site-potential tree heights are needed to provide full protection of stream shading, litter inputs, and nutrient regulation. Benda's (2008) buffer design strategy for large wood recruitment figure displays the outer mortality zone as extending to 150 feet for coastal forests with mass wasting.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsections (f) (2)(A)-(E) establish the WLPZ widths for various "zones" within the WLPZ. They also establishes harvesting prescriptions, operational limitations, and exceptions to the standards in this section (see graphic).

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**Class I WLPZ for watersheds in the coho salmon ESU.**



The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] (f) (2)(A) establish a “Core Zone” that is a 30 foot wide area closest to the water. There is no harvesting in this area, with a few exceptions. The scientific literature states that the riparian zone closest to the channel is critical for providing adequate large wood recruitment, shading, and channel bank stability. Benda (2008) reported that bank erosion is usually the principle source of “key pieces” of large wood, and that selective harvest can threaten that source. Benda’s (2008) diagram for coastal forests shows that, on average, 50% of cumulative wood recruitment comes from the first 25 feet. The use of a core zone is also supported by the CH2M-Hill and Western Watershed Associates (1999) review of root strength. Their review included information that root strength protecting stream channels comes from a distance equal to one half of a mature tree crown diameter (stated as ~30 ft or less for coast redwood trees in the Riparian Protection Committee (RPC) Report (Cafferata et al. 2005). The RPC Report states that if no harvesting is proposed in this zone, it is possible to conclude that little if any change in bank stability would be anticipated (particularly for a laterally stable channel network). Additionally, SWC (2008) found that mechanical disturbance from management activities within about 30 feet will often produce and deliver sediment to stream channels. Note that this does not include sediment in concentrated flow that is routed through riparian protection zones in gullies or small channels.

14 CCR § 916.9 [936.9, 956.9] subsection (f) (2)(B) establishes the “Inner Zone”, the middle zone contiguous to the Core Zone and is 70 feet wide. Limited harvesting is permitted in this zone subject to the requirements of 14 CCR 916.9 subsection (f) (2)(B). The harvesting and operational requirements for the Inner Zone are based in part on “source distance relationships” for riparian functions and support the concept of near-

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stream silvicultural prescriptions being driven by factors which emphasize retention and/or recruitment of large trees to facilitate riparian functions (SWC 2008, Pyles et al. 2002). The literature supports the concept of limited harvesting in the inner zone for specific reasons. For example, Spence et al. (1996) state that for second-growth forests, limited harvest, thinning, planting, or other manipulations may be appropriate in order to facilitate recovery and protection of key functions, particularly in coastal forests. They report that these activities should only be allowed when they can be performed without adversely impacting other riparian functions or values. Spence et al. (1996) state that the overall goal should be to restore the riparian zone to a "natural" condition, not to maintain timber production within the riparian zone over the long term.

The most commonly suggested form of limited harvest in riparian zones within 100 feet of the stream channel is "thinning from below." The Riparian Committee Report (Cafferata et al. 2005) stated that thinning from below involves harvesting intermediates and co-dominants only, and that quadratic mean diameter (QMD) of the stand must increase after harvest. Modeling showed that this silvicultural method did not significantly reduce the number of large trees following six decades. The Scientific Review Panel Report (Ligon et al. 1999) stated that thinning from below may be an appropriate form of harvesting in riparian buffer strips and defined this type of harvest as: "A low thinning is to be used in conjunction with silvicultural treatments in Zone A of Class I WLPZs. This thinning involves the removal of the understory, mid-canopy, and very limited numbers of co-dominant trees. Co-dominant trees may be removed only to improve spacing and enhance growth. Dominant trees may not be removed, and average stand diameter must increase following harvest."

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsections (f) (2) (B) and (B) (1.) reflect the findings from the above information. These sections require that harvesting be limited to commercial thinning or single tree selection with stated modifications that are different from the typical FPRs standards. Subsection (B) requires increasing quadratic mean diameter (QMD), defined as the average diameter corresponding to the mean basal area, to ensure the average tree in the post-harvest setting is larger than that in the pre-harvest setting.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2)(B) (2.) limits salvage harvesting to allow an adequate tree supply of large woody debris for the stream and the terrestrial area of the WLPZ.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2)(B) (3.), post harvest standards for overstory canopy in the Inner Zone are some of the more highly controversial provisions of the entire T/I rule proposal. This is because of the necessity of the Inner Zone to ensure proper ecological conditions to support riparian function and because of the economic value of the overstory canopy trees needed to meet this standard.

The "Inner Zone" proposed for the WLPZs provides a wood supply for the stream and shade and microclimate control functions. Various standards can be used to provide for these functions, including trees per acre, basal area, relative density, overstory canopy

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closure, and angular canopy density. After investigating possible basal area and stems per acre targets for the Inner Zones of Class I WLPZs, information was not readily available to determine sufficient metrics for the Inner Zone. Therefore, a conservative surrogate approach is being utilized to approximate what is needed for a “well stocked stand” that can provide adequate long term large wood recruitment through self-thinning and other forms of mortality. This surrogate is 80% overstory canopy cover measured in the WLPZ with a sighting tube for the coho ESU. This standard is necessary to retain a sufficient number of trees for short or long term future large wood recruitment to the channel, as well as to ensure that other characteristics such as microclimate and wildlife habitat are adequate protected or restored.

Optional Amendments 4 and 5 provide alternatives to using the 80% overstory canopy cover requirements 14 CCR § 916.9[936.9, 956.9] subsection (f) (2) (B) (3.). Optional Amendment 4 or 5 would replace subsection (3.). These options are mutually exclusive of the proposed language in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B) (3.), meaning only one standard would be included in the final adopted regulation.

Optional Amendment 4 was proposed as consistent with the minimum standards of a California Wildlife Habitat Relationship (WHR) model of a 5D stand which means average stand diameter breast height is 24 inches or greater and overstory canopy closure is 60% to 80%). This standard provides less conservative protection for salmonid habitat over the long term and would provide enough flexibility to allow timber harvesting to occur to better contribute to maximum sustainable production and on an economically practical level.

Optional Amendment 5 was proposed for purposes of recognition of the differences in timber types between the Coast and Northern Forest Practice Districts (NFPD). The NFPD has a lesser capacity of the NFPD to have or be able to obtain an 80% overstory canopy closure (OSC). The 60% OSC is similar to Optional Amendment 4 in that it provides for the minimum standards of a WHR 5D stands and would provide enough flexibility to allow timber harvesting to occur to better contribute to maximum sustainable production and on an economically practical level.

Using a standard of 60% overstory canopy for the coho salmon ESU carries with it more risk and is potentially inadequate for several reasons. This standard would be only 10% greater than the standard currently in place for non-Threatened or Impaired watersheds. This standard could result in severe depletions of the pool large trees available for future wood recruitment and an increased risk of adverse microclimate conditions in the Inner Zone. Since wood recruitment to stream channels occurs slowly over many decades, computer modeling is often used to predict how varying management strategies will affect stream channel conditions over time. For example, Sullivan (2008) modeled three Douglas-fir riparian zone management scenarios. Her modeled scenarios included : (1) *Bank stability zone + management to encourage large trees in middle, then economic management in the outer zone >100 ft;* (2) *No action;* and (3) *Current WA Desired Future Condition forest practice rules that allow no harvest in near stream and middle zone up to 100 feet and economic management in the outer band.* Sullivan’s modeling

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work shows that large wood piece count in stream channels is much lower for the first 100 years with option 1. This analysis suggests that it is less risky to do nothing in the inner zone than to over thin this area. Dr. Sullivan's work supplies evidence that overharvest in the middle or inner zone can have significant implications for large wood recruitment over the next several decades in the coast zone (i.e., coho salmon ESU). Dr. Sullivan's presentation to the Board's Forest Practice Committee on March 24, 2009 in Sacramento indicated that the 80% overstory canopy standard was indicative of a well stocked stand that could supply sufficient large wood through self thinning and other forms of mortality.

Dr. Sullivan's work is largely consistent with modeling completed by Beechie et al. (2000), which predicts that thinning of the riparian forest does not increase recruitment of pool-forming large wood where the trees are already large enough to form pools in the adjacent channel, and that thinning reduces the availability of adequately sized wood. Thinning can increase large wood recruitment where trees are too small to form pools and, because of reduced competition, trees more rapidly attain pool-forming size. Their modeling suggests that thinning riparian forests may help reduce the recovery time for channels greater than 15 or 20 m wide, which corresponds to channels that have been most affected by past timber harvest practices. However, their modeling also suggests thinning may retard recovery time in smaller channels.

Spence et al. (1996) state that for second-growth forests, limited harvest, thinning, planting, or other manipulations may be appropriate in order to facilitate recovery and protection of key functions, particularly in coastal forests. They report that these activities should only be allowed when they can be performed without adversely impacting other riparian functions or values. Spence et al. (1996) state that the overall goal should be to restore the riparian zone to a "natural" condition, not to maintain timber production within the riparian zone over the long term. Young (2000) states that short of establishing no-harvest zones for all streams, management zone guidelines should require the retention of all or most of the largest conifers with the potential to affect channel structure and function.

While the proposal under 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2)(B) (3.) for the 80% overstory canopy highly restricts harvesting in this zone, there are approaches that allow for limited harvesting in this zone. These include: (1) limited site-specific practices for thinning from below where appropriate (i.e., particularly for larger watercourses greater than 15 to 20 m wide (bankfull width), since thinning of conifer trees will not increase recruitment of pool-forming large wood on channels less than 15 or 20 m wide) (Beechie et al. 2000), and (2) expanded watershed-wide modified practices included in an approved data-rich, site specific plan, such as the Spatially Explicit Riparian Management (SERM) approach (Benda et al. 2008) or other site specific approaches pursuant to 14 CCR § 916.9 [936.9, 956.9] subsection (f)(4) (i.e. site specific plans for flood prone areas) or 14 CCR § 916.9 [936.9, 956.9] subsection (v), Site Specific or non standard operational provisions.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B) (4.) sets standards to retain a portion (13 per acre) of the largest trees within the combined

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Inner and Core Zones. It deletes the existing T/I provision for large trees in 14 CCR § 916.9 [936.9, 956.9] subsection (i). The proposed retention standard of 13 trees per acre equates to the existing T/I language in 14 CCR § 916.9 [936.9, 956.9] subsection (i) of 10 trees per acre along a 330 ft stream reach within a 100 ft landward area. The standards are rewritten for clarity.

The science basis for retaining the largest trees are found in literature and professional expert input. Young (2000) states that retention of the largest available conifers with the potential to enter channels should be the foundation of any riparian zone management strategy purporting to protect the diversity of ecological processes dependent on natural riparian forests (Bisson and others 1987, Sedell and others 1993—cited in Young 2000). Brad Valentine, Department of Fish and Game, stated in the CDF 1997 coho salmon considerations white paper that Lienkaemper and Swanson (1987, as cited in Cummins 1994) suggest that approximately 10 mature conifer trees per 100 meters of stream are needed to achieve debris loading similar to that in a mature forest stream system.

This subsection contains Optional Amendment 6, stating that “*The RPF may propose to substitute smaller diameter trees for consistency with 14 CCR § 916.9[936.9] subsection (f) (2)(B)(5.)*”. Optional Amendment 6 allows the Board to choose to include the option with 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B) (4.) or to exclude the option. Optional Amendment 6 IS NOT mutually exclusive of 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B) (4.). The Board may choose to include the option or not include the option with no other affects on other regulations.

Inclusion of Optional Amendment 6 does not ensure subsequent harvest will retain the largest trees. This adds risk to reducing the size of retained trees over time as the zone is reentered and not adequately providing for the most desired size wood for future recruitment. However, inclusion of this alternative may facilitate active in-stream wood deposition projects where landowners have an incentive to place large wood in streams in exchange for substituting smaller trees for this requirement. Piles et al. (2002) state that a 28 inch DBH tree near the stream with a high potential to fall may be more important to retain than a 32 inch DBH tree up the slope with much less potential to reach a stream, suggesting that trading trees is appropriate.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B) (5.) contains “Best Management Practice” that provides guidance to RPFs to focus on retaining trees that are most likely to fall and become large wood for the stream. It does not add any prescriptive requirements.

The proposed Optional Amendment 7 in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B) (6.) provides for measuring stream shading, as indexed by solar radiation being blocked by vegetation primarily within the Core and Inner Zones of Class I watercourses. Angular canopy density (ACD) is the percentage of time that a given point on a stream will be shaded between 10 a.m. to 2 p.m. local solar time in mid to late-summer. The ability of a buffer strip to prevent increases in stream temperature can be determined by measuring ACD (Beschta et al. 1987, OFPAC 1999). ACD of old growth stands in western Oregon have been reported as between 80 and 90% (Brazier and Brown 1973,

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Steinblums et al. 1984). Erman et al. (1977) reported ACD in northern California (coast and interior) as averaging 75% along undisturbed streams. Steinblums (1977) measured ACD for Oregon buffer strips and reported that a buffer strip 85 ft wide shades a stream as well as an average undisturbed forest canopy. ACD can be measured with a variety of instruments, including a Solar Pathfinder® , preferably along the twalweg of the watercourse channel (Teti and Pike 2005). Both conifers and hardwoods are to be used for ACD measurement.

Optional Amendment 7 allows the Board to choose to include the option as a requirement of both the Core and the Inner Zone. Optional Amendment 7 IS NOT a mutually exclusive Option. The Board may choose to include the option or not include the option with no other affects on other regulations.

Inclusion of “Angular Canopy Density” is well supported in the science literature as a measure of stream shading, and thus temperature impacts to the stream. However, it is not a good metric for ensuring a sufficient number of large conifer trees are retained in the Inner Zone for large wood recruitment to the stream channel. Additionally, while this is a scientifically valid measurement, it has not been widely used by practicing foresters in California. Opinions taken from resource professionals on a field trip in January 2009 to assess the proposed WLPZ standards of this section found wide variation in experience and familiarity with this measurement. It appears to be a redundant prescriptive requirement to those already included for the Inner Zone, assuming the 80% vertical overstory canopy standard for is adopted. However, it may be applicable for a valid measurement of stream shading for an RPF designing a site specific plan under 14 CCR § 916.9 [936.9, 956.9] subsection (v).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B) (7.) provides for an additional parameter (basal area) for the goal of ensuring that an adequate supply of appropriately sized large wood is retained in the inner zone for near term and long term recruitment to the stream. This or other alternate parameters, such as using “trees per acre,” have been initially assessed by staff, since they have been widely used by other western states (e.g., Oregon and Washington) (Young 2000, Everest and Reeves 2007). The trees per acre parameter, used in combination with basal area and vertical overstory canopy, was suggested by Dr. Kate Sullivan of Humboldt Redwood Company as a more reliable and definitive means of ensure retention of adequate numbers of trees necessary for future wood supply during the Board’s Forest Practice Committee meeting held on March 24, 2009 in Sacramento.

Information used to develop the basal standards were taken from Technical Bulletin 201, the Yield of Douglas-Fir the Pacific Northwest, McArld, Meyers and Bruce, 1961, Table 3, average site, age 50, basal area greater than 7 inches. Additionally riparian post harvest stocking levels for each forest type were developed from Gualala Redwoods Management Plans; the Green Diamond HCP; the PALCO HCP; Bulletin 796 Linquist and Palley, 1962; Dunning, Reinhardt and Meyer, 1961; and advice from former Board member Robert Heald in a document written in 2002. Consideration of other basal area levels for different forest types, site classes, and those that more accurately reflect canopy closure requirements were initially considered by Dr. Helge Eng, CAL FIRE,

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Sacramento. However, robust scientific analysis is not currently developed for California to support this using basal for the Inner Zone objectives.

The use of basal area standards for the goal of ensuring that an adequate supply of appropriately sized large wood is retained in the Inner Zone per 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B) (7.) is Optional Amendment 8. Optional Amendment 8 allows the Board to choose to include the option as a requirement of the Inner Zone. Optional Amendment 8 IS NOT a mutually exclusive Option. The Board may choose to include the option or not include the option with no other affects on other regulations. Inclusion of this requirement would likely provide for a conservative approach for ensuring an adequate wood supply for the Inner Zone. However, while feasible, the lack of highly developed information to substantiate the standards suggests that this option is not preferential for inclusion in the proposal and may result in an unnecessary economic impact, in that it retains an excess amount of valuable trees in the Inner Zone. Unlike other western states that have used a basal area standard to regulate harvest in a secondary zone within a riparian buffer strip, California has widely varying conifer species that have been managed under a wide range of silvicultural systems, making the use of this parameter difficult without considerable data collection and computer modeling work, which could not be completed in the time frame available for rule revision.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (C) establish an “Outer Zone” that is a 50 feet wide contiguous to the Inner Zone when certain circumstances are found adjacent to the WLPZ. The proposed amendment specifies the situation under which the Outer Zone is required. This section also establishes the harvesting prescriptive standards and the operational requirements for the zone.

The Outer Zone is only required when there evenage management is to be applied above the Inner Zone. The main reasons for requiring an Outer Zone for the coho ESU where evenaged management is proposed above the WLPZ relate to: (1) providing wind resistance to prevent blowdown (Reid and Hilton 1998), (2) micro-climate control in the zone for purposes other than limiting water temperature change (Brososke et al. 1997, Pyles et al. 2002), (3) retaining adequate terrestrial wildlife habitat (Kelsey and West 2001), and (4) additional wood recruitment from the outer mortality zone (Benda 2008). Pyles et al. (2002) suggest retaining 50% overstory canopy in the outer 100-150 ft band of a Class I coast riparian management zone for amphibian habitat and to enhance the water temperature control provided by the inner band.

Additionally, there are a considerable number of references in the literature stating that riparian buffers of one site tree are appropriate for protecting and/or restoring riparian functions, equaling or exceeding the 150 foot distance for the coho ESU area. For coast redwood, one site tree is slightly more than 200 feet (MRC draft HCP/NCCP, Spence et al. 1996). Therefore, it is reasonable to suggest an outer band that expands the total riparian buffer width to 150 ft. Steinblums et al. (1984) suggested that a buffer of approximately 130 feet was needed for 100% shading. Spence et al. (1996) state that 0.75 x 1 site tree is required for shading—yielding a WLPZ width of 150 ft in the coast redwood zone.

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14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (C) contains Optional Amendment 9. Optional Amendment 9 allows the Board to choose to include the option and exclude the proposed standards for the Outer Zone in stated in 14 CCR § 916.9[936.9, 956.9] subsection (f) (2) (C). Optional Amendment 9 is a mutually exclusive option. The Board must choose either Option 9 or the standard proposed 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (C). Optional Amendment 9 requires an outer zone only where windthrow is a demonstrated occurrence and where tractor logging is proposed on slopes greater than 50%. This alterative recognizes the goal of the Outer Zone for sediment erosion buffer to the WLPZ and not for the other objectives and functions provided by the Outer Zone as stated in 14 CCR § 916.9[936.9, 956.9] subsection (c). Optional Amendment 9 does not highly recognize the multiple functions of the Outer Zone and proves less certainty in achieving the objectives of the Outer Zone stated in 14 CCR § 916.9[936.9, 956.9] subsection (c) (3).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (D) establish “Best Management Practices” (BMPs) that guide expectations of timber operations conducted to achieve the goals of the rules. These BMPs are not mandatory requirements, but are standards the RPF and Director should consider as part of the approval process for authorizing harvest in a WLPZ. The BMPs are generally practices that address use of heavy equipment for timber operations in the WLPZ. They are primarily intended to reduce soil exposure and potential adverse impacts from erosion and discharge of sediment into watercourses from operations.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (E) establish a special operating zone for areas adjacent to the Outer Zone when certain circumstances are present. Recommendations for this zone were developed in consultation with the Department of Fish and Game on January 15, 2009. Requirements are proposed to mitigate direct solar radiation from adversely affecting water temperature in settings where sunlight is transmitted through the lower level of the forest stand due to a combination of aspect and evenaged management adjacent to the WLPZ. The proposed requirements include retaining understory vegetation to block sunlight that would permeate the stand, expose the watercourse to sunlight, and result in potentially significant adverse impacts to water temperature. It is anticipated that the need to use of this amendment would be infrequent.

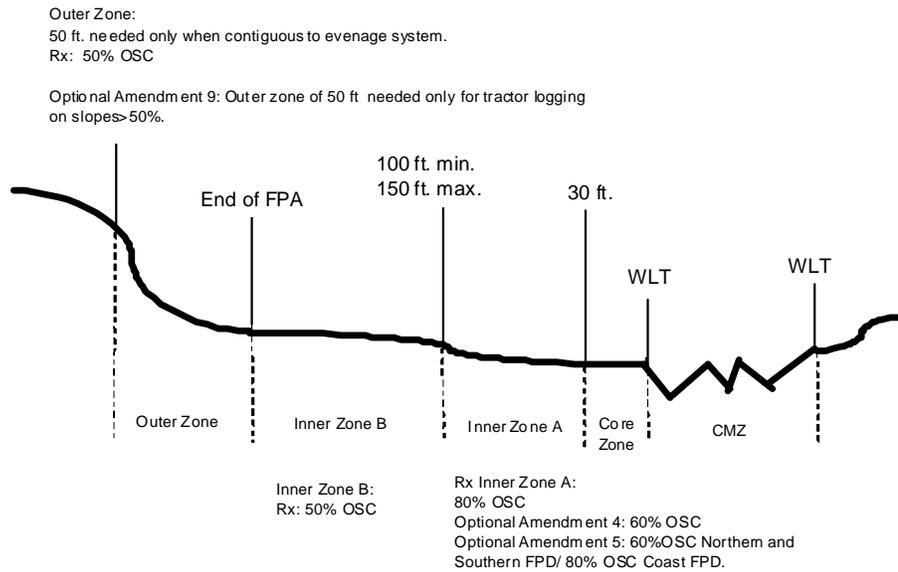
**Harvesting prescriptions and operational requirements for Class I watercourses with flood prone areas and/or channel migration zones.**

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (3) provides for Class I watercourse WLPZ standards and operation requirements for flood prone areas (FPAs) and/or channel migration zones (CMZs). Both of these situations are associated with unconfined channels. Specific requirements for FPAs are necessary to address protection and operational criteria and limitations for timber harvesting in this riparian setting. FPAs have been identified in science literature as containing critical habitat for anadromous salmonids.

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The amendments establish up to five zones within the WLPZ: The CMZ (when present), the Core Zone (the portion of the flood prone area nearest the water, and contiguous to the CMZ when present), the Inner Zone A (contiguous to the Core Zone), the Inner Zone B (contiguous to Inner Zone A and extending to the landward edge of the flood prone area), and the Outer Zone (the hillslope area that is contiguous to the Inner Zone B and landward perimeter of the flood prone area) (see graphic).

**Class I WLPZ in flood prone areas or channel migration zones**



The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(3)(A) establish requirements when CMZs are present. These are areas where the channel is not laterally stable and they provide unique biological habitats for off-channel refugia for anadromous salmonid species. The proposed requirements for this zone generally prohibit timber operations, with limited exceptions. Methodologies for delineating CMZs are provided by guidelines in a Washington Forest Practice Board Technical Document (WFPB 2004).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(3)(B) establish requirements for a Core Zone that is a 30 feet wide area closest to the channel. There is substantially no harvesting in this area with exceptions. The necessity and purpose of this Core Zone are similar as those stated in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2)(A) for Core Zones for Class I watercourses with confined channels in the coho salmon ESU.

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The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(3)(C) establish requirements for the Inner Zone A, which is a 70 foot to 120 foot wide area adjacent to the Core Zone. The requirements for this zone are the same as the requirements for Class I watercourses with confined channels in the coho salmon ESU stated in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(2)(B). The requirements for the Inner Zone A contain Optional Amendments 4, 5, 6, 7, and 8 as previously described for Class I watercourses with confined channels in the coho ESU stated in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(2)(B).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (3)(D) establish requirements for the Inner Zone B, which is an area of unspecified width that extends from the end of the Inner Zone A to the landward edge of the FPA (Inner Zone B ends at the end of the FPA). The Inner Zone B is only applied with wide FPAs. The Inner Zone B is established in the field by using one or a combination of descriptive or engineering methods as stated in the FPA definition in 14 CCR 895.1. Use of an established engineering method (i.e., two times bankfull stage height, as described in Rosgen 1996) for determining the outer perimeter of a flood prone area was determined as one method to establish the outer FPA perimeter. The scientific literature and personal communication with Dr. William Trush, McBain and Trush, Arcata, suggests that this method establishes a 40 to 50 year floodplain perimeter for coastal California watersheds. Therefore, this method provides a more conservative (protective) approach for establishing the area where harvesting activities will be limited in a flood prone area, since the definition in 895.1 states that the FPA shall be based on the 20-year flood flow.

The proposed amendment permits substantial harvesting in the Inner Zone B, with limitations. The purpose of 14 CCR § 916.9 [936.9, 956.9] subsection (f) (3) (D) (1.) and (2.) is to describe harvesting limitations in this zone. Silvicultural systems for harvesting are limited to the use of the commercial thinning or single tree selection, the postharvest stand shall retain the 13 largest conifer trees per acre, and the postharvest stand shall have a minimum 50% overstory canopy. The scientific basis for these standards are described in Class I watercourses with confined channels in the coho ESU in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2)(B)(4.) and 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2)(C). Additionally, the requirement for retaining the 13 largest trees per acre in the outer part of the FPA is necessitated by the fact that there will be eventual channel migration over longer time periods in these areas, and a sufficient number of large, mature trees must be available to provide for riparian functions when this occurs.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(3)(E) establish “Best Management Practices” (BMPs) that guide expectations of timber operation conduct to achieve the goals of the rules. These BMP are not mandatory requirements, but are standards the RPF and Director should consider as part of the approval process for authorizing harvest in a FPA. The BMPs are general practices that address use of heavy equipment used for timber operations in the FPA. They are primarily intended to reduce soil exposure and potential adverse impacts from erosion and discharge of sediment into watercourses from operations. Additionally, these BMPs are provided to avoid disruption of critical habitat features such as overflow channels, abandoned meanders, oxbow lakes, or other features that provide off-channel habitat for

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fish during flood flows. SWC (2008) found that protection/ enhancement of these biological “hot spots” should be a priority and the BMPs are designed to protect these unique values of FPAs.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(3)(F) establish an “Outer Zone” that is 50 feet wide contiguous to the Inner Zone A or Inner Zone B (when present) when certain circumstances are found upslope adjacent to the WLPZ. The proposed amendment specifies the situation under which the Outer Zone is required. This section also establishes the harvesting prescriptive standards and the operational requirements for the zone. The requirements for this zone are the same as the requirements for Class I watercourses with confined channels in the coho ESU stated in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(2)(B). The requirements for the Outer Zone contains Optional Amendment 9, as previously described for Class I watercourses with confined channels in the coho ESU stated in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(2)(C).

**Site specific harvesting plans and operational requirements for Class I watercourses with flood prone areas**

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(4) establish an approach to allow RPFs to develop a site specific plan for salmonid habitat protection on a flood prone area. Site specific plans are to lead to development of properly functioning salmonid habitat and can include active management to restore conifer deficient riparian zones. RPFs are to propose WLPZ widths and management practices that are designed for local conditions. Supporting documentation is required (e.g., field data, NetMap analysis, large wood modeling results, etc.).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(4)(A) and (B) establish general limitations and objectives for which a site specific FPA plan is intended to accomplish. These are necessary to ensure the site specific plan pertains to the appropriate geomorphic/riverine setting and is designed based on local conditions.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(4)(C) and (D) describe the content necessary for a FPA site specific plan. The requirements are based on information contained in a report titled “Flood Prone Area Considerations in the Coast Redwood Zone” (Cafferata et al. 2005).

The requirements generally include describing processes that need to be considered for the issues identified, developing and describing a desired trajectory for watercourse and riparian conditions, describing the proposed management activities and the science basis for them, and describing a monitoring program to determine the adequacy of the practices implemented. The process includes completing an inventory of all the FPA functions that could be affected by timber operations, documenting the frequency of flood inundation interval for the area to be managed, and conducting an appropriate analysis for the functions present in light of possible significant adverse impacts from management. Together, this will provide information sufficient for plan review agencies to assess the validity of the site specific plan; make an evaluation of the potential significant adverse

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environmental impacts of the plan; allow evaluation of whether the plan provides for protection, maintenance and restoration of the beneficial functions of the riparian zone; and contribute to the goals and objectives of 14 CCR § 916.9 [936.9, 956.9] subsection (a) and (c), including, but not limited to, properly functioning salmonid habitat.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(4)(E) establish disclosure and analysis requirements commensurate to the increased risk associated with the proposed level of activity and the frequency of inundation in the flood prone area. In particular, management proposed within the 20-year recurrence interval flood prone area in a watershed with coho salmon habitat or restorable habitat requires detailed analysis, as this flood frequency is found to be the most valuable for this salmonid species.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(4)(F) require site specific plans to consider a larger watershed perspective that includes consideration of the stream network and past activities in the watershed. Also, consideration must be given to the current condition of the flood prone area. This type of assessment is consistent with the Report of the Scientific Review Panel on California Forest Practice Rules and Salmonid Habitat (Ligon et al. 1999). It is intended to recognize that the impairment of a water body that leads to a listing of a species under CESA generally does not occur as the result of a single catastrophic event, but as the cumulative result of many events over time and space. This requirement reinforces existing FPRs requiring the assessment of significant adverse cumulative watershed impacts and the need to take responsibility for reducing them.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(4)(G) specifies a reference document that is to be used for guidance in developing a site specific plan in the coast redwood zone. Information in this document provides direction and technical details on how to develop a site specific plan that is sufficient for disclosing information necessary for plan review agencies to assess the validity of proposal; make an evaluation of the potential significant adverse environmental impacts of the plan; allow evaluation of whether the plan provides for protection, maintenance and restoration of the beneficial functions of the riparian zone; and contributes to the goals and objectives of 14 CCR § 916.9 [936.9, 956.9] subsection (a) and (c) for properly functioning salmonid habitat.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(4)(H) establish the public agency review and concurrence needed for the Director to accept the site specific plan as part a THP or other harvest plan. This section also establishes the need for including a monitoring component as part of the FPA site specific plan. The monitoring component as been determined by review agencies to be a essential part of the site specific plan to ensure objectives are being meet, and to provide for modifying the site specific plan to avoid significant adverse impacts or non-attainment of objectives.

**Harvesting prescriptions and operational requirements for Class I watercourses with confined channels outside of watersheds in the coho salmon ESU**

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (5) establish harvesting prescriptions, WLPZ widths, and operational requirements for Class I watercourses with confined channels outside the coho salmon ESU. This geographic area generally encompasses watersheds east of Interstate Highway 5.

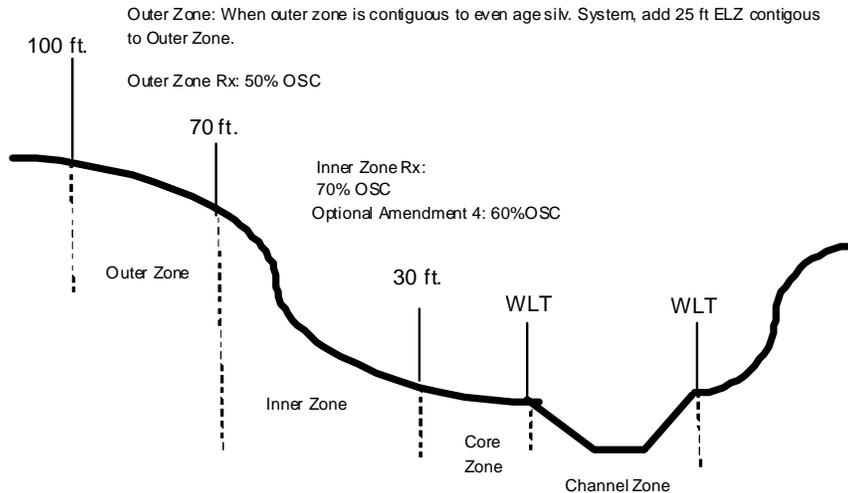
Rules specific to this area were developed in consideration of the unique physiographic, geomorphic, climatic, and resident listed species needs. To determine the appropriate set of regional rules and evaluate variations of habitat and geologic conditions for the T/I rules, the Board appointed a Technical Advisory Committee to oversee a science literature review and used other scientific literature to evaluate the wide variation in California's bioregions.

The unique characteristics that drive rules for this section are found in the Sierra Nevada and Cascade Range provinces, areas with generally having smaller trees, less mass wasting, lower overall precipitation with a higher percentage from snow, steeper bedrock/boulder controlled channels, and more long term erosion related to wildfire. Benda (2008b) states that the importance of streamside landsliding and debris flows on wood recruitment is less common in the Sierra Nevada and Cascades compare to other T/I areas. Additionally, a WLPZ width of 100 feet for Class I watercourses in this area is based on data from Benda (2003), James (2003), and Rambo and North (2008) showing that wood recruitment distance, shading requirements, and microclimate impacts are generally lower for small interior watercourse channels with listed anadromous fish species compared to coastal stream channels.

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (5)(A)-(E) establish the widths for various "zones" within the WLPZ. It also establishes harvesting prescriptions, operational limitations, and exceptions to the standards in this section (see graphic)

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**Class I WLPZ for watersheds outside the coho salmon ESU.**



These standards are derived from several sources. Belt et al. (1992) state that a maximum protection approach is to evaluate each of riparian function criteria in terms of buffer strip width, and then adopt the greatest width so as to accommodate all criteria. Benda et al. (2003) state that recruitment patterns of wood can be used to design buffer strip dimensions. Many studies support the contention that the wood recruitment subsumes other riparian processes (except for sediment from roads) in terms of zone width (Benda 2008a, 2008b), and that most large wood is recruited from within 20 m (66 ft) to 40 m (130 ft) of channel banks [note that wood recruitment source-distance curves are highly related to input process (Naiman et al. 2000, Benda et al. 2003, Benda and Associates 2004)]. Spence et al. (1996) state that a protected buffer of approximately one site potential tree (in most PNW forests--30-45 m) provides 90 to 100% of inputs from a properly functioning riparian corridor (and that buffer widths of approximately 0.75 site-potential tree heights are needed to provide full protection of stream shading, litter inputs, and nutrient regulation).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (5)(A) establish a “Core Zone” that is a 30 foot wide area closest to the water. There is no harvesting in this area, with few exceptions. The scientific literature states that the riparian zone closest to the channel is critical for providing adequate large wood recruitment, shading, and channel bank stability. Benda (2008) reported that bank erosion is usually the principle source of “key pieces” of large wood, and that selective harvest can threaten that source. Benda’s (2005) diagram for interior forests shows that,

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on average, 70% of cumulative wood recruitment comes from the first 10 m (33 ft). The use of a core zone is also supported by the CH2M-Hill and Western Watershed Associates (1999) review of root strength. Their review included information that root strength protecting stream channels comes from a distance equal to ½ a mature tree crown diameter. If no harvesting is proposed in this zone, it is possible to conclude that little if any change in bank stability would be anticipated (particularly for a laterally stable channel network). Additionally, SWC (2008) found that mechanical disturbance from management activities within about 30 feet will often produce and deliver sediment to stream channels. Note that this does not include sediment in concentrated flow that is routed through riparian protection zones in gullies or small channels.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (5)(B) establish an “Inner Zone” that is the middle zone contiguous to the Core Zone and is 40 feet wide. Limited harvesting is permitted in this zone subject to the requirements in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (5)(B).

The harvesting and operational requirements for the Inner Zone are based in part on “source distance relationships” for riparian functions and support the concept of near-stream silvicultural prescriptions being driven by factors which emphasize retention and/or recruitment of large trees to facilitate riparian functions (SWC 2008, Pyles et al. 2002). SWC (2008) concluded that there is only limited data available for the relative source distance relationships appropriate for the various geomorphic regions of California, but the most data exists for large wood. Benda (2003) reported that for the interior sites he inventoried (Lassen, Weaverville area, Judd Creek [Southern Exposure], Bailey Creek, Millseat, etc.), 90% of wood recruitment came the first 60 feet from the stream. Benda’s (2008a) TEF wood recruitment diagram shows that 90% of cumulative wood recruitment for old Sierra and mature Klamath forests comes from approximately 70 ft. Benda et al. (2003) report that 90% of conifer wood from the Klamath Province and Cascade Range comes from approximately the first 70 ft (20 m).

The literature supports the concept of limited harvesting in the inner zone for specific reasons. For example, Spence et al. (1996) state that for second-growth forests, limited harvest, thinning, planting, or other manipulations may be appropriate in order to facilitate recovery and protection of key functions, particularly in coastal forests. They report that these activities should only be allowed when they can be performed without adversely impacting other riparian functions or values. Spence et al. (1996) state that the overall goal should be to restore the riparian zone to a "natural" condition, not to maintain timber production within the riparian zone over the long term.

The most commonly suggested form of limited harvest in riparian zones within 100 feet of the stream channel is “thinning from below.” The SRP Report (Ligon et al. 1999) define thinning from below as: “A low thinning is to be used in conjunction with silvicultural treatments in Zone A of Class I WLPZs. This thinning involves the removal of the understory, mid-canopy, and very limited numbers of co-dominant trees. Co-dominant trees may be removed only to improve spacing and enhance growth. Dominant trees may not be removed, and average stand diameter must increase following harvest.”

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The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsections (f)(5)(B) and (B) (1.) reflect the findings from the above information. These sections require that harvesting be limited to commercial thinning or single tree selection with stated modifications that are different from the typical FPRs standards. Subsection (B) requires increasing quadratic mean diameter (QMD), defined as the average diameter corresponding to the mean basal area, to ensure the average tree in the post-harvest setting is larger than that in the pre-harvest setting. This will contribute to producing larger trees more quickly, improving future recruitment of large wood to the stream. The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (5)(B)(2.) limit salvage harvesting to allow an adequate tree supply of large woody debris for the stream and the terrestrial area of the WLPZ.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] (f) (5)(B)(3.) for post harvest standards for overstory canopy in the Inner Zone are some of the more highly controversial provisions of the entire T/I proposal. This is because of the necessity of the Inner Zone to ensure proper ecological conditions to support riparian function and because of the economic value of the overstory canopy trees needed to meet this standard.

The Inner Zone proposed for WLPZs for this geographic area of the T/I rules provides a wood supply for the stream, shade, and limited microclimate control functions. Various standards can be used to provide for these functions, including trees per acre, basal area, relative density, overstory canopy closure, and angular canopy density. After investigating possible basal area and stems per acre targets for the Inner Zone of Class I WLPZs, information was not readily available to determine sufficient metrics for the Inner Zone. Therefore, a conservative surrogate approach is being utilized to approximate what is needed for a “well stocked stand” that can provide adequate long term large wood recruitment through self-thinning and other forms of mortality, as well as adequate stream shading. This surrogate is 70% overstory canopy cover measured in the Inner Zone with a sighting tube. This standard is reduced compared to the areas in the coho salmon ESU due to the presence of different conifer species and vegetation types, as well as the somewhat lower importance of large wood in streams in this geographic area due to the common presence of boulder/bedrock dominated streams. Past forest practice monitoring work has shown that canopy cover for Class I watercourses has been lower in interior parts of the state, in part due to warmer, drier conditions and the presence of slower growing tree species (Cafferata and Munn 2002, Brandow et al. 2006). Brandow et al. (2006) reported that post-harvest total canopy cover for Class I WLPZs averaged approximately 70% for the inland portions of the state.

While somewhat less important than in the coastal mountains, this standard is necessary to retain a sufficient number of trees for short or long term future large wood recruitment to the channel, as well as to ensure that other characteristics such as microclimate and wildlife habitat are adequate protected or restored.

Optional Amendment 11 found in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5) (B)(3.) provides an alternative to using the 70% post harvest overstory canopy cover

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requirement, and proposes using a 60% overstory canopy. Optional Amendment 11 would replace subsection (3.). This option is mutually exclusive of the proposed language in 14 CCR § 916.9[936.9, 956.9] subsection (f)(5)(B)(3.), meaning only one standard would be included in the final adopted regulation.

Optional Amendment 11 was proposed for purposes of being consistent with the minimum standards of a California Wildlife Habitat Relationship Model (WHR) of 5D stand (i.e. size class 5 means average stand diameter breast height is 24 inches or greater and overstory canopy closure is 60% to 80%). This standard provides less conservative protection for salmonid habitat over the long term and would provide enough flexibility to allow timber harvesting to occur to better contribute to maximum sustainable production and on an economically practical level.

Using a standard of 60% overstory canopy for this area carries with it potentially more risk for several reasons. This standard would be only 10% greater than the standard currently in place for non-Threatened or Impaired watersheds. This standard could result in depletions of the pool of large trees available for future wood recruitment. Since wood recruitment to stream channels occurs slowly over many decades, computer modeling is often used to predict how varying management strategies will affect stream channel conditions over time. For example, Sullivan (2008) modeled three Douglas-fir riparian zone management scenarios. Her modeled scenarios included : (1) *Bank stability zone + management to encourage large trees in middle, then economic management in the outer zone >100 ft;* (2) *No action;* and (3) *Current WA Desired Future Condition forest practice rules that allow no harvest in near stream and middle zone up to 100 feet and economic management in the outer band.*

This analysis suggests that it is less risk to do nothing in the Inner Zone than to over thin this area. Dr. Sullivan's work supplies evidence that overharvest in the middle or inner zone can have significant implications for large wood recruitment over the next several decades. Dr. Sullivan's presentation to the Board's Forest Practice Committee on March 24, 2009, in Sacramento indicated that the a higher overstory canopy standard would provide a well stocked stand that could supply sufficient large wood through self thinning and other forms of mortality.

Dr. Sullivan's work is largely consistent with modeling completed by Beechie et al. (2000), which predicts that thinning of the riparian forest does not increase recruitment of pool-forming large wood where the trees are already large enough to form pools in the adjacent channel and that thinning reduces the availability of adequately sized wood. Thinning can increase large wood recruitment where trees are too small to form pools and, because of reduced competition, trees more rapidly attain pool-forming size. Their modeling suggests that thinning riparian forests may help reduce the recovery time for channels greater than 15 or 20 m wide, which corresponds to channels that have been most affected by past timber harvest practices. However, their modeling suggests that thinning may retard recovery time in smaller channels.

Spence et al. (1996) state that for second-growth forests, limited harvest, thinning, planting, or other manipulations may be appropriate in order to facilitate recovery and

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protection of key functions, particularly in coastal forests. They report that these activities should only be allowed when they can be performed without adversely impacting other riparian functions or values. Spence et al. (1996) state that the overall goal should be to restore the riparian zone to a "natural" condition, not to maintain timber production within the riparian zone over the long term. Young (2000) states that short of establishing no-harvest zones for all streams, management zone guidelines should require the retention of all or most of the largest conifers with the potential to affect channel structure and function.

While the proposal under 14 CCR § 916.9 [936.9, 956.9] ,subsection (f)(5)(B)(3.) for the 70% overstory canopy highly restricts harvesting in this zone, there are approaches that allow for limited harvesting in this zone. These include: (1) limited site-specific practices for thinning from below where appropriate (i.e., particularly for larger watercourses greater than 15 to 20 m wide (bankfull width), since thinning of conifer trees will not increase recruitment of pool-forming large wood on channels less than 15 or 20 m wide) (Beechie et al. 2000), and (2) expanded watershed-wide modified practices included in an approved data-rich, site specific plan, such as the Spatially Explicit Riparian Management (SERM) approach (Benda et al. 2008) or other site specific approaches pursuant to 14 CCR 916.9 (f)(4) (i.e. site specific plans for flood prone areas) or 14 CCR § 916.9 [936.9, 956.9] subsection (v), Site specific or non standard operational provisions.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(B)(4.) require leaving the seven largest conifers for Class I watercourses in this zone, approximately half the standard for the coho salmon ESU. Interior California streams have a high percentage of large wood coming from first 30 feet from bank erosion (Benda 2005). Additionally, a higher percentage of Sierra Nevada/Cascade range streams are boulder and bedrock dominated, where large wood is less important for forming pools (SWC 2008). Berg et al. (1998) reported that few pieces of inventoried large wood in the central Sierra Nevada contributed to the formation of pools or steps.

Similar to Class I watercourse proposals in the coho ESU, this subsection contains Optional Amendment 6. This option allows substituting retaining smaller trees for larger with justification. Optional Amendment 6 allows the Board to choose to include the Option with 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(B)(4.) or to exclude the option. Optional Amendment 6 IS NOT mutually exclusive of 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(B)(4.), and may be included with no affect to other regulatory sections. Inclusion of Optional Amendment 6 does not ensure subsequent harvest will retain the largest trees. This adds risk to reducing the size of retained trees over time as the zone is reentered and not adequately providing for the most desired size wood for future recruitment. However, inclusion of this alternative may facilitate active in-stream wood deposition projects where landowners have an incentive to place large wood in streams in exchange for substituting smaller trees for this requirement.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(B)(5.) contain "Best Management Practices" that provides guidance to RPFs to focus on

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retaining trees that are most likely to fall and become large wood for the stream. It does not add any prescriptive requirements.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(B)(6.) provides for measuring stream shading, as indexed by solar radiation being blocked by vegetation primarily in the Core and Inner Zones of Class I watercourses. Angular canopy density (ACD) is the percentage of time that a given point on a stream will be shaded between 10 a.m. to 2 p.m. local solar time in mid to late-summer. The ability of a buffer strip to prevent increases in stream temperature can be determined by measuring ACD (Beschta et al. 1987, OFPAC 1999). ACD of old growth stands in western Oregon have been reported as between 80 and 90% (Brazier and Brown 1973, Steinblums et al. 1984). Erman et al. (1977) reported ACD in northern California (coast and interior) as averaging 75% along undisturbed streams. Steinblums (1977) measured ACD for Oregon buffer strips and reported that a buffer strip 85 ft wide shades a stream as well as an average undisturbed forest canopy. ACD can be measured with a variety of instruments, including a Solar Pathfinder®, preferably along the twalweg of the watercourse channel (Teti and Pike 2005)). Both conifers and hardwoods are to be used for ACD measurement.

Similar to the Class I watercourse proposals in the coho ESU, this subsection is Optional Amendment 7. Optional Amendment 7 allows the Board to choose to include the option as a requirement of the Inner Zone. Optional Amendment 7 IS NOT a mutually exclusive Option. The Board may choose to include the Option or not include the Option, with no other regulatory affects on other sections.

Inclusion of “Angular Canopy Density” is well supported in the science literature as a measure of stream shading, and thus temperature impacts to the stream. However, it is not a good metric for ensuring a sufficient number of large conifer trees are retained in the Inner Zone for large wood recruitment to the stream channel. Additionally, while this is a scientifically valid measurement, it has not been widely used by practicing foresters in California. Opinions taken from resource professionals on a field trip in January 2009, to assess the proposed WLPZ standards of this section found wide variation in experience and familiarity with this measurement. It appears to be a redundant prescriptive requirement to those already included for the Inner Zone. However, it may be applicable for a valid measurement of stream shading for an RPF designing a site specific plan under 14 CCR § 916.9 [936.9, 956.9] subsection (v).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(B)(7). provide for an additional parameter (basal area) for the goal of ensuring an adequate supply of appropriately sized large wood is retained in the Inner Zone for near term and long term recruitment to the stream. This or other alternate parameters, such as using “trees per acre”, have been initially assessed by staff, since they have been widely used by other western states (e.g., Oregon and Washington) (Young 2000, Everest and Reeves 2007). The trees per acre parameter, used in combination with basal area and vertical overstory canopy, was suggested by Dr. Kate Sullivan of Humboldt Redwood Company as a more reliable and definitive means of ensure retention of adequate numbers of trees necessary for future wood supply during the Board’s Forest Practice Committee meeting held on March 24, 2009 in Sacramento.

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Information used to develop the basal standards were taken from Technical Bulletin 201 the Yield of Douglas Fir the Pacific Northwest, McArld, Meyers and Bruce, 1961, Table 3, average site, age 50, basal area greater than 7 inches. Additionally riparian post harvest stocking levels for each forest types were developed from Gualala Redwoods Management Plans, Green Diamond HCP, PALCO HCP, Bulletin 796 Linquist and Palley, 1962, Dunning and Reinhardt, Meyer 1961, and advice from former Board member Robert Heald in 2002. Consideration of other basal area levels for different forest types, site classes, and those that more accurately reflect canopy closure requirements were initially considered by Dr. Helge Eng, CAL FIRE, Sacramento. However, robust scientific analysis is not currently developed for California to support this using basal for the Inner Zone objectives.

Similar to Class I watercourse proposals in the coho ESU, amendments proposed in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(2)(B)(7.) contains Optional Amendment 8 that address basal area standards for the Inner Zone. Optional Amendment 8 allows the Board to choose to include or exclude the option as a requirement of the Inner Zone. Optional Amendment 8 IS NOT a mutually exclusive option. The Board may choose to include the option or not include the option with no affect on other regulatory sections. Inclusion of this requirement would likely provide for a conservative approach for ensuring an adequate wood supply for the Inner Zone. However, while feasible, the lack of highly developed information to substantiate the standards suggests that this Option is not preferential for inclusion in the proposal and may result in an unnecessary economic impact in that it retains an excess amount of valuable trees in the Inner Zone.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(C) establish an “Outer Zone” that is 30 feet wide contiguous to the Inner Zone. This section also establishes the harvesting prescriptive standards and the operational requirements for the zone.

The main reasons for requiring a mandatory outer zone for watersheds outside the coho salmon ESU are: (1) providing adequate stream shading, (2) providing marginal large wood recruitment from the outer zone (Benda 2005), (3) providing adequate sediment filtration, and (4) retaining adequate terrestrial wildlife habitat (Kelsey and West 2001). Additionally, there are a considerable number of references in the literature that riparian buffers of one site tree are appropriate for riparian functions, equaling or exceeding the 100 foot distance for the non-coho ESU area.

The proposed amendment for the Outer Zone in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(C) also includes an equipment limitation zone (ELZ) adjacent to the Outer Zone for certain circumstances. When evenaged regeneration methods or other similar prescriptions are utilized adjacent to the Outer Zone, an additional 25 foot ELZ is required adjacent to the Outer Zone. This requirement is necessary to address potential significant adverse environmental impacts for erosion movement into the WLPZ. The ELZ is needed for Outer Zone sediment filtration and is based on findings in Coe (2006) that sediment can be transported below roads for 40 meters.

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The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(D) establish “Best Management Practices” (BMPs) that guide expectations of timber operation conduct to achieve the goals of the rules. These BMP are not mandatory requirements, but are standards the RPF and Director should consider as part of the approval process for authorizing harvest in a WLPZ. The BMPs are generally practices that address use of heavy equipment for timber operations in the WLPZ. They are primarily intended to reduce soil exposure and potential adverse impacts from erosion and discharge of sediment into watercourses from timber operations.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(5)(E) establish a special operating zone for areas adjacent to the Outer Zone when certain circumstances are present. Recommendations for this zone were developed in consultation with the Department of Fish and Game in January 2009. Requirements are proposed to mitigate direct solar radiation from adversely affecting water temperature in settings where sunlight is transmitted through the lower level of the forest stand due to a combination of aspect and evenaged management adjacent to the WLPZ. The proposed requirements include retaining understory vegetation to block sunlight that would permeate the stand, expose the watercourse to sunlight, and result in potentially significant adverse impacts to water temperature. It is anticipated that the need to use of this amendment would be infrequent.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Not include amendments for Class I watercourses.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Using only site specific standards for Class I watercourses with flood prone areas.

This alternative was rejected because it would not impose a relatively costly and intensive set of regulations for establishing Class I WLPZs in FPAs. It would also not provide a set of regulations that are convenient for small landowners, who may not have the financial or technical expertise.

3. Consider different “regional” rules specific to the various bioregions within the scope of the T/I area.

This alternative was rejected because science information did not provide robust details on appropriate distinct geographical bioregions and the associated prescriptive standards that should be assigned to them.

4. Establish the WLPZ width to a distance of “one site tree”.

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While often mention in scientific literature as a adequate buffer that supports all riparian functions, this alternative was rejected because the proposed buffer widths and characteristics were substantiated in science literature for addressing protection of the beneficial uses of water and riparian functions in Class I watercourses.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that this regulation could potentially result in a significant adverse economic impact on businesses conducting timber operations in T/I watersheds. However, the costs associated with the requirements imposed by the new regulations are difficult to estimate as they vary greatly. The Board staff estimated that this regulation could potentially result in long-term costs that would vary greatly depending on, but not limited to: (1) the current condition of the watershed (i.e. beneficial uses of water, riparian habitat, or others), (2) the topographic and geologic features affecting harvesting practices, (3) the affected area under the control of the plan submitter, and (4) the long-term land management goals of the plan submitter.

The protection measures currently provided in the rules and those that are proposed under this rulemaking package are anticipated to provide the means to secure restoration over a long period of time in most instances. Therefore, some cost will be incurred over time and will not significantly impact overall cost of land management. Considering the broad range of circumstances that would affect costs associated with the new requirements, the Board has determined that estimations of the potential cost for this regulation would be difficult to present in a format that would provide for meaningful public disclosure. However, the following cost estimates associated with various portions of the proposed rules are provided for consideration.

These regulations are likely to have both positive and negative cost impact to landowners. The primarily negative cost impacts are due to a: 1) reduction of available land for timber management in Class II Watercourse Lake Protection Zones (WLPZs); and 2) additional paperwork necessary to justify timber harvesting in (WLPZs) and for “site – specific plans” when prescriptive standards are not used.

The primary positive economic impact results from increasing the land available for timber management in Class I WLPZs. This is due to the reduction in width of the WLPZ in Class I watercourses where there is no evenage harvesting adjacent to the WLPZ or reduction of WLPZ width to 100 feet for all Class I WLPZs in the non coho

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watersheds. In some situations, this increases the land in the riparian area available for harvest by 33% to 50% compared to the existing T/I rules. Other positive economic impacts are related to the wider opportunity for more flexible site specific management plans that address the unique needs of the salmonid habitat. These plans would result in a greater opportunity for timber management in the WLPZ that improves habitat while not being constrained by a default set of standard prescriptions.

The following table summarizes, in qualitative terms, the economic impacts to landowners of the proposed rules compared to the existing T/I rules.

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**Summary of economic impacts related to Class I watercourses**

<b>Rule section or topic</b>	<b>Negative economic impact</b>	<b>Positive economic impact</b>
Class I watercourses	<ul style="list-style-type: none"> <li>▪ Increases documentation for proposed actions in the WLPZ.</li> <li>▪ Requires a no harvest “core zone” which is 30 ft wide where timber management is highly restricted. Adverse cost impact is minor as current rules have defacto no harvest canopy retention standards in this area.</li> <li>▪ Reduces timber harvesting opportunities for the area between 75 ft to 100 ft in the WLPZ due to increasing overstory canopy cover requirement from 65% to 80% for the coho ESU and 70% in the non coho ESU.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increases timber harvesting opportunities for the area between 100 ft to 150 ft in the WLPZ due to elimination of the outer zone when there is no even age harvesting adjacent to the WLPZ. This is a significant positive cost impact as this increases by 33% the landbase in the riparian zone available for “maximum sustainable production” (MSP)</li> <li>▪ Non coho ESU watersheds have outer zone completely eliminated. This is a significant positive cost impact as this increases by 33% the landbase in the riparian zone available for MSP.</li> <li>▪ Increases timber harvesting opportunities for the area between 30 ft to 75ft in the WLPZ due decreasing overstory canopy cover requirement from 85% to 80% for the coho ESU. This is a minor positive impact since there is little difference in additional timber available between 80% or 85 % OSC.</li> <li>▪ For non coho ESU watersheds large tree retention is reduced by half compared to existing rules. This is a significant positive cost impact because a greater pool of valuable trees may be available for MSP.</li> <li>▪ For non coho ESU watersheds the WLPZ area from 30 ft to 100 ft from the channel zone overstory canopy cover requirement is decreased from 85% to 70% compared to existing rules. This has a positive cost impact because a greater pool of valuable trees may be available for MSP.</li> </ul>
Class I SOZ	<ul style="list-style-type: none"> <li>▪ The inclusion of the special operating zone in a very few specific situations would result in increased operating costs.</li> </ul>	<ul style="list-style-type: none"> <li>▪ By substantially deleting the requirement for a special operating zone (as previously defined in the existing T/I rules) for the area between the 150 ft to 200 ft in the WLPZ, minor amounts of additional timber is available for harvest and operational restrictions in this area are reduced lower logging costs.</li> </ul>

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**Summary of economic impacts related to Class I watercourses (continued)**

<b>Rule section or topic</b>	<b>Negative economic impact</b>	<b>Positive economic impact</b>
Class I Best Management Practices	<ul style="list-style-type: none"> <li>▪ Potentially increases timber harvesting operation costs due to imposition of practices that require careful planning and lower production outputs.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Potential cost savings from efficiencies in T/I planning, review and approval as standardized sets of practices are expected.</li> </ul>
Class I Flood Prone Areas and Channel Migration Zones.	<ul style="list-style-type: none"> <li>▪ Costs related to establishing these zones on the ground.</li> <li>▪ Imposition of prescriptive standards for FPAs.</li> <li>▪ General prohibition of harvesting in the CMZ.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Opportunity for site-specific plan, avoiding prescriptive standards for FPAs.</li> <li>▪ Provides guidance flexibility for various methods to establish the extent of the FPAs.</li> </ul>

Detailed quantitative estimates or ranges of positive and negative economic impacts to landowners have not been made. However, one method of determining cost impacts is to focus on the change in availability of timberland (meaning how much timber can or cannot be harvested) along Class I watercourses resulting from the rule change. This is the most significant cost impact for the Board to consider because it results in the greatest magnitude of cost impact to landowners (landowners could lose or gain a significant amount of money as a result of the change in rules for Class I and Class II WLPZs).

Considering the above cost estimates, the Board staff has determined that the proposed regulations may have an adverse economic impact on businesses, and such impact may be significant. However, the proposed amendments that adversely affect cost may be outweighed by the positive cost impacts resulting in a net positive cost impacts to landowners.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action except as described below. The proposed changes to the language for Class I watercourses under 14 CCR § 916.9 [936.9, 956.9] subsection (f) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids. The prescriptive standards are based on the science findings attesting to riparian conditions needed to protect riparian function and promote properly functioning salmonid habitat. This is expected to result in no significant adverse environmental impact at an individual site or on a cumulative basis when applied at a large scale across a watershed. The rules were developed to address all riparian functions including heat exchange, water quantity and quality, sediment exchange, large wood exchange, and nutrient exchange that could potentially affect the beneficial uses of water and listed salmonid species.

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Options are contained in the proposed rules that 1) reduce the Class I watercourse ‘Inner Zones’ to postharvest overstory canopy less than 80%, and 2) minimize or eliminate the ‘Outer Zone’ in the coho ESU. These options have not been assessed as to their potential significant environmental affect. However, these options are less consistent with the Board’s science literature review and represent a higher risk to environmental impacts to listed salmonids compared the T/I proposal without the options.

**14 CCR §§ 916.9 [936.9, 956.9] (g)**

**Class II watercourses**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsections (g) (1)-(2) are the proposed amendments for Class II watercourses. There are currently no Class II watercourse rules for Class II watercourses in the T/I areas. Standard requirements for Class II watercourses in the FPRs that apply in any area pursuant the Forest Practice Act currently apply to the T/I areas.

The proposed amendments establish WLPZ delineation and timber operations in Class II WLPZs. Differing rules are specified for watersheds in the coho salmon ESU and areas outside the coho salmon ESU. WLPZ width ranges from 50 to 100 feet slope distance, depending on side slope steepness in the WLPZ and watercourse type.

The proposed amendments to the language under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1) establish two types of Class II watercourses—standard Class II and large Class II (II-L) watercourses and the office and field methods to delineate them. Standard Class II watercourses are those classified in the FPRs pursuant to 14 CCR § 916.5 [936.5, 956.5] that are not Class II- L watercourses. Large Class II (Class II-L) watercourses can supply water and nutrients to a Class I watercourse during the month of July during an average hydrologic year, can supply coarse and fine sediment to the Class I channel, and may be able to supply wood of a size that would function as large wood for the Class I watercourse. Large Class II watercourses can deliver water directly into Class I watercourses where listed anadromous salmon, migrate, spawn and rear. Late summer flows may pose a substantial risk to salmon by delivering warm water to rearing

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habitats. The primary objective of this rule section is to maintain, protect or restore the values and functions of Class II-L watercourses.

The proposed amendments to the language under 14 CCR § 916.9 [936.9, 956.9] subsections (g)(1)(A)(1.)-(3.) define the suitable office methods for determining Class II - L watercourses. The proposed rule language under 14 CCR § 916.9[936.9, 956.9] subsection (g) (1)(A)(1) establishes an office method for Class II-L delineation using stream order. Stream order is a commonly used method for classifying streams defined by Strahler (1957) that can be used to identify potential Class II-L watercourses. Stream order uses stream branching or a hierarchy of tributaries as an indicator of stream size. Stream order is highly dependent on whether topographic maps are used or detailed field mapping. Field mapping is preferred over the use of USGS topographic maps to determine stream order. Stream order is well correlated to drainage area (i.e., stream order plots against drainage area as a straight line on semilog graph paper) (Leopold et al. 1964).

The proposed rule language under 14 CCR § 916.9 [936.9, 956.9] subsection (g) (1)(A)(2.) establishes an office method for Class II-L delineation using watercourses which are mapped on 1:24,000 scale U.S. Geological Survey topographic maps. These “blue line” streams are inferred to drain larger areas and provide surface flow later into the summer relative to watercourses which are not mapped.

The proposed rule language under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(A) (3.) establishes “drainage area” as an office method for Class II-L delineation using watercourses. This method is based on local experience in determined the watershed area required to produce mid-late summer stream flow for a normal hydrologic year.

One or more of these office methods are to be used to identify potential Class II-L watercourses.

The proposed rule language under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(B) establishes field methods to determine Class II-L watercourses. Field methods are required to verify office methods to ensure that appropriate Class II-L watercourses are delineated. The field methods include and validate office methods by considering actual flow observations, observing channel characteristics that indicate summer flows, or using continuous steam monitoring information to determine the watershed drainage area necessary to initiate mid-summer streamflow for a given ecoregion.

The proposed rule language under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(C) finalizes the Class II-L delineation, while 14 CCR § 916.9 [936.9, 956.9] subsection (g) (1)(D) requires documentation in the plan of how the determination was made. This is necessary to ensure the appropriate watercourses were delineated and to support regulatory review and enforcement.

The proposed rule language under 14 CCR § 916.9 [936.9, 956.9] subsection (g) (1) (E) establishes the minimum distance where prescriptive regulations for Class II-L

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watercourses shall apply. The minimum distance is 1000 feet from the confluence of a Class I watercourse, or the total length of the Class II–L as field verified. This subsection contains Optional Amendment 12. Optional Amendment 12 allows the Board to choose to include the option that establishes a 650 foot minimum distance from the confluence of a Class I watercourse where Class II-L regulations apply, and exclude the proposed standards (1000 feet) for the minimum distance where prescriptive regulations for Class II-L watercourse apply. Optional Amendment 12 is a mutually exclusive Option. The Board must choose either Optional Amendment 12 (650 feet) or the proposed standard (1000 feet) for the distance where prescriptive regulations for Class II-L watercourse is applied per 14 CCR § 916.9 [936.9, 956.9] subsection (g) (1) (E).

The 1000 foot distance for a large Class II watercourse from the junction with a Class I watercourse is a conservative approach supported by the literature. Benda et al. (2008) state that instream connectivity may average two to three hundred meters (approximately 650 to 1000 feet). Zwieniecki and Newton (1999) found in low gradient streams averaging ten feet in width and 0.5 cfs within buffered clearcuts, increased temperatures cooled to trend line temperatures within 150-300 meters (approximately 500 to 1000 feet) downstream. Sullivan et al. (1990) suggested for larger streams that 600 meters (1,969 feet) be the minimum length for streams to equilibrate to background temperatures. SWC (2008) stated that past studies led them to conclude that the downstream temperature response from timber harvest in headwater streams is variable and is highly dependent on a host of factors (i.e., volume of stream flow, canopy cover, substrate type, in-stream wood volume, groundwater inflow, and hyporheic exchange) in both headwaters and downstream reaches. While they stated that the findings of research outside of California suggest that buffers extending from 150 to 200 m (approximately 500 to 650 feet) upstream may be adequate to protect water temperature in low order streams that drain into fish bearing waters, they added that additional research is needed in California to validate or refine this relationship. The more conservative approach is justified to help recover listed species of anadromous fishes in California, particularly coho salmon.

The proposed rule language under 14 CCR § 916.9 [936.9, 956.9] subsection (g) (1) (F) requires the Class II-L watercourse to be delineated on a plan map. This is necessary to ensure the appropriate watercourses were delineated to support regulatory review and enforcement.

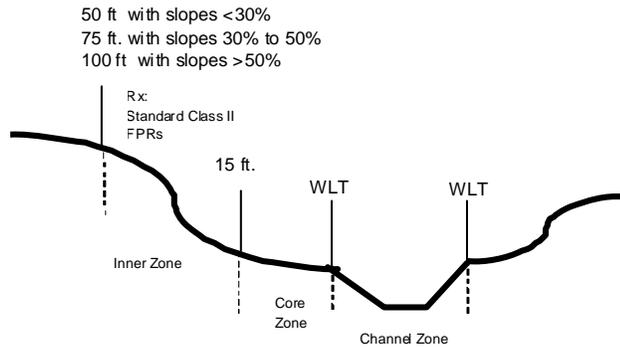
The proposed rule language under 14 CCR § 916.9 [936.9, 956.9] subsection (g) (2) establishes harvesting prescriptions, WLPZ widths, and operational requirements for Class II watercourses in watersheds in the coho ESU and outside the coho ESU. Rules specific to these areas were developed in consideration of the unique physiographic, geomorphic, climate, resident listed species needs. The rational and scientific basis for differing standards in the two regions within the T/I area is the same as described for Class I watercourses.

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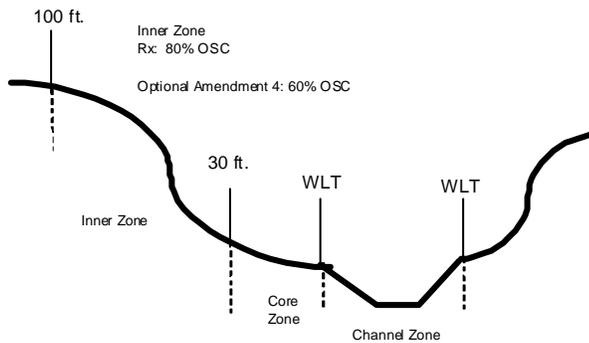
The proposed changes to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (g) (2) (A)-(B) establish the WLPZ widths for various “zones” within the WLPZ for both standard and large Class II watercourse. It also establishes harvesting prescriptions, operational limitations, and exceptions to the standards in this section (see graphics).

**Class II WLPZ for watercourses in the coho salmon ESU**

**Class II Standard WLPZ - watersheds in the coho salmon ESU**



**Class II Large WLPZ - watersheds in the coho salmon ESU**



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The proposed amendments in 14 CCR § 916.9[936.9, 956.9] subsection (g) (2) (A) establish a “Core Zone” that is 30 feet wide for the coho ESU area and 20 feet wide for the non-coho ESU area and is closest to the stream channel. There is no harvesting in the area with few exceptions. The width of the Core Zone depends on whether the watercourse is in the coho ESU or outside the coho ESU and whether the Class II watercourse is a standard Class II or a Class-L.

The requirement for a Core Zone for standard Class II watercourses contains Optional Amendment 13. This option deletes the requirement for a Core Zone for standard Class II watercourses (see Table Y of the regulation referenced in CCR § 916.9[936.9, 956.9] subsection (g) (2) (A). Optional Amendment 13 allows the Board to choose to include the option and exclude the proposed standards for a Core Zone for standard Class II watercourses stated in 14 CCR § 916.9 [936.9, 956.9] subsection (g) (2)(A). It does not affect Class II –L watercourses. Optional Amendment 13 is a mutually exclusive option. The Board must choose either Optional Amendment 13 (exclude the Core Zone for standard Class IIs) or the proposed standards (include the Core Zone for standard Class IIs).

The literature is clear that large trees are required for small headwater streams to maintain a variety of riparian functions. For standard and large Class II watercourses, the scientific literature states that large wood in headwater stream channels, most of which can reasonably be expected to originate from the location termed here as the Core Zone, plays an important role in moderating sediment transport in non-fish bearing streams. These channels make up the majority of the channel network, yet the California Forest Practice Rules have typically focused on preventing temperature impacts or the delivery of sediment from adjacent hillslopes. Large wood plays an important role in modifying channel hydraulics, increasing sediment storage, and decreasing the rate of sediment transport in headwater channels (Megahan 1982; Chesney 2000; May and Gresswell 2003; Gomi and Sidle 2003, Hassan et al. 2005). A reduction of large wood loading in these channels will result in a more direct coupling between the fine sediment inputs into headwater reaches and the delivery of this sediment to Class I fish-bearing watercourses. By providing for long-term large wood recruitment to these channels, it is possible to increase sediment storage potential and decrease the likelihood of sediment delivery to fish-bearing streams. Benda (2008a,b) reported that bank erosion is often the principle source of “key pieces” of large wood, and that selective harvest near channels can threaten this source. Young (2000) states that requiring no-harvest zones and retaining even some of the largest conifers near small, steep, and fishless streams would maintain the broader suite of riparian–stream linkages operating at the stream to watershed scale.

Additionally, the no harvest core zone on small headwater streams provides for bank stability, reducing sediment input into both Class II and larger Class I fish-bearing streams. Retention of trees for channel bed and bank stability was found to be important for small headwater streams in Humboldt County by Pyles et al. (2002). CH2M-Hill and Western Watershed Associates (1999) reviewed the scientific literature on root strength near watercourses. They reported that buffer distance to maintain the effectiveness of root strength for bank stability probably does not extend beyond 10-15 m (30-50 feet)

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(Newton 1993; Newton and others 1996), or one-half a tree crown diameter (Wu 1986). Using the relationship in Bechtold 2004, a 36 in dbh coast redwood tree has a crown diameter of approximately 29 feet, and one-half diameter is approximately 15 feet. If no harvesting is proposed in this zone, it is reasonable to conclude that little if any change in bank stability would occur.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (g) (2) (B) establishes an “Inner Zone” that varies from 35 to 80 feet wide and is adjacent to the Core Zone. The width of the Inner Zone depends on whether the watercourse is in the coho ESU or outside the coho ESU and slope in the WLPZ. The Inner Zone applies only to Class II-L watercourses and is not applicable to standard Class II watercourses.

**NOTE: The standards, rational and Optional Amendments for the Inner Zone of Class II-L watercourses are substantially the same as stated in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2)(B) for Class I watercourses, with some exceptions. For brevity, the Inner Zone standards and options are described without the rational. Refer to the rational and scientific basis for Class I watercourses in 14 CCR § 916.9 [936.9, 956.9] subsection (f) (2) (B).**

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (g) (2)(B)(1.) require increasing quadratic mean diameter (QMD), defined as the average diameter corresponding to the mean basal area (Curtis and Marshall 2000), to ensure the average tree in the post-harvest setting is larger than that in the pre-harvest setting. This will contribute to producing larger trees more quickly, improving future recruitment of large wood to the stream.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (g) (2) (B) (2.) limits salvage harvesting to contribute to an adequate tree supply of large woody debris for the stream and the terrestrial area of the WLPZ.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (g)(2)(B) (3.) establish post harvest standards of 80% overstory canopy in the Inner Zone. Optional Amendment 4 applies to the Inner Zone of Class-II L watercourses. Optional Amendment 4 would replace subsection (3.) (the 80% OSC standard) with a 60% OSC standard. This Option is mutually exclusive of the proposed 80% OSC standard, meaning only one standard would be included in the final adopted regulation.

High shade and large numbers of mature conifer trees are required for large Class II watercourses, since watershed products such as heated water, wood, and fine sediment can be transported into fish-bearing Class I watercourses from these reaches. Since these watercourses are not fish-bearing, however, it is appropriate to have the standards in this secondary zone for wood and shade retention somewhat lower than for Class I watercourses.

14 CCR § 897(c) states that the goal for landowners is to retain or recruit late and diverse seral habitat components in WLPZs. Late succession forests are defined as stands of

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dominant and predominant trees that meet the criteria of WHR class 5M, 5D, or 6. WHR canopy class M requires 40 to 60% canopy cover and D must have >60%, while size class 5 specifies a QMD of >24 inches. A minimum overstory canopy requirement equivalent to the 5D standard 60% is likely to be an adequate standard for the Inner Zone of large non-fish bearing Class II watercourses. The SRP Report (Ligon et al. 1999) states that it is appropriate to have 65% overstory canopy in the outer zone of Class II watercourses, which is roughly consistent with this proposal.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(g)(B)(4.) sets standards to retain the largest 13 trees per acre within the combined Inner and Core Zones for Class II-L watercourses in the coho ESU and 7 trees per acre in the watercourses outside the coho ESU. This subsection contains Optional Amendment 6. Optional Amendment 6 allows the Board to choose to substitute smaller trees for the larger trees when justified. Optional Amendment 6 IS NOT mutually exclusive to 14 CCR § 916.9[936.9, 956.9] subsection (g)(2)(B)(4.).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (g)(2)(B)(5.) is basically a “Best Management Practice” that provides guidance to RPFs to focus on retaining trees that are most likely to fall and become large wood for the stream. It does not add any prescriptive requirements.

The proposed amendments in 14 CCR § 916.9[936.9, 956.9] subsection (g (2) (B) (6.) provides using angular canopy density (ACD). This subsection is Optional Amendment 7. Optional Amendment 7 allows the Board to choose to include the Option as a requirement of the Core and Inner Zones. Optional Amendment 7 IS NOT a mutually exclusive Option. The Board may choose to include the Option or not include the Option.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (f)(2)(B)(7.) provide for an additional parameter (basal area) for the goal of ensuring that an adequate supply of appropriately sized large wood is retained in the Inner Zone for near term and long term recruitment to the stream. This subsection is Optional Amendment 8. Optional Amendment 8 allows the Board to choose to include the Option as a requirement of the Inner Zone. Optional Amendment 8 IS NOT a mutually exclusive option. The Board may choose to include the option or not include the option, with no affects on other regulatory sections.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Include rules specific to the Southern Subdistrict (Santa Cruz/San Mateo County area).

The Board considered regional rules for the Southern Subdistrict (SSD) of the Coast Forest Practice District for requirements for Class II Large watercourses. The Board considered varying WLPZ width based on slope class, post harvest stand having 50% overstory canopy cover, with at least 25% overstory conifer canopy; requiring all trees leaning towards the channel to be retained, specifying 650 feet as the maximum length, having a core zone of 15 feet; and retaining 3 conifer trees from the upper 20% stand diameter distribution within the core zone.

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For small Class II watercourses, the Board considered a SSD proposal that would do away with the 15 ft no-harvest zone but provide 50% overstory canopy instead of 50% total canopy. Instead of requiring a no cut core zone, the Board considered a proposal to retain all trees leaning towards the channel. This proposal is largely based on the fact that the SSD only allows selection harvest and has only practiced this form of silviculture from several decades. Monitoring data for water temperature have also been presented to the Board indicating generally low values for numerous streams in the region.

This alternative was initially rejected because review of science literature did not provide specific information for this region to make a clear assessment that the Southern Subdistrict has different riparian function needs from the other portions of the coho ESU, warranting a unique set of rules. CAL FIRE staff, in consultation with the Board's Forest Practice Committee, public agencies, and affected landowners in the SSD, continue to evaluate alternative prescriptive practices for the SSD. The FPC has already included an option requested by the SDD landowners to limit the Class II-L length to a maximum of 650 ft from the entry of a Class I watercourse.

2. Exclude Core Zone requirements for standard Class II watercourses

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species, or consistency with Public Resource Code 4513.

3. Not include the regulations.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing Class II watercourses.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that this regulation could potentially result in a significant adverse economic impact on businesses conducting timber operations in T/I watersheds. However, the costs associated with the requirements imposed by the new regulations are difficult to estimate as they vary greatly. The Board staff estimated that this regulation could potentially result in long-term costs that would vary greatly depending on, but not

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limited to: 1) the current condition of the watershed, (i.e., beneficial uses of water, riparian habitat, or others), 2) the topographic and geologic features affecting harvesting practices, 3) the affected area under the control of the plan submitter, and 4) the long-term land management goals of the plan submitter.

The protection measures currently provided in the rules and those that are proposed under this rulemaking package are anticipated to provide the means to secure restoration over a long period of time in most instances. Therefore, some cost will be incurred over time and will not significantly impact overall cost of land management. Considering the broad range of circumstances that would affect costs associated with the new requirements, the Board has determined that estimations of the potential cost for this regulation would be difficult to present in a format that would provide for meaningful public disclosure. However, the following estimations of costs associated with various portions of the proposed rules are provided for consideration:

These regulations are likely to have a negative cost impact to landowners. The primarily negative cost impacts are due to a: 1) reduction of available land for timber management along Class II watercourses; and 2) increase in documentation related to classifying locations of Class II-L watercourses.

The following table summarizes, in qualitative terms, the positive and negative economic impact to landowners of the proposed rules compared to the existing T/I rules.

**Summary of economic impacts related to Class II watercourses**

<b>Rule section or topic</b>	<b>Negative economic impact</b>
Class II Large	<ul style="list-style-type: none"> <li>▪ Requires a no harvest “core zone” which is 30 ft wide for the coho ESU area and 20 ft wide for the non coho ESU area. Timber management is highly restricted within this zone.</li> <li>▪ Increases documentation related to classifying locations of Class II-L watercourses.</li> <li>▪ Requires a fixed 100 foot WLPZ width resulting in reduction of land available for MSP. (Standard forest practice rules for Class IIs require a 50 foot, 75 foot, and or 100 foot width (depending on slope). A 25 ft reduction is allowed for the 100 foot width on slopes &gt;50% when cable yarding operations are proposed.</li> <li>▪ Reduces timber harvesting opportunities for the area between 20 or 30 ft to 100 ft in the WLPZ due to increasing overstory canopy cover requirement from 50% total canopy to 60% or 80% OSC (depending on option selected by the Board), requiring an increasing QMD, and requiring the 13 largest conifer trees to remain following harvesting.</li> <li>▪ Increases RPF costs for designation of a portion of the largest trees in the Core and Inner Zones.</li> </ul>
Class II (standard)	<ul style="list-style-type: none"> <li>▪ Requires a no harvest “core zone” which is 15 ft wide for the coho ESU area and 10 ft wide for the non coho ESU area. Timber management within this zone is highly restricted, resulting in reduction of timberland available for MSP.</li> </ul>

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Detailed quantitative estimates or ranges of negative economic impacts to landowners have not been made. However, one method of determining cost impacts is to focus on the change in availability of timberland (meaning how much timber can or cannot be harvested) in Class II watercourses resulting from the rule change. This is the most significant cost impact for the Board to consider because it results in the greatest magnitude of cost impact to landowners (landowners could lose or gain a significant amount of money as a result of the change in rules for Class II WLPZs).

An economic impact estimate of the likely additional cost related to Class II and Class III requirements under this proposal can be made from information contained in previous regulations for Coho Incidental Take Assistance, 2007. For this estimate, DFG modeled the effects of applying the similar prescriptive mitigation measures for Class II and Class III watercourses. This effort relied upon 61 randomly selected THPs from 2002 within the geographic range of coho salmon. Using geographic information system (GIS) technology, DFG was able to estimate the extent of expanded Class II Watercourse and Lake Protection Zones (WLPZs) and additional retention for commercial tree species in Class III Channel Zones. DFG provided the following results:

# of THPs	61 THPs
Average THP size	288 acres
Average Length Class II zero order	3563'
Average Length Class II/THP $\geq$ 1st order	2851'
Total Length Class II/THP	6144'
Total length Class III/THP	6,242'
Ave increase in Class II WLPZ/THP <sup>1</sup>	4.6 acre (1.6%)
Average acreage of Class III channel zone/THP <sup>2</sup>	1.43 acre (0.5%)

The net effect, on average for any THP where similar requirements of those proposed in this regulation are used, is that an additional 2.1% of any THP area would be included in Class II WLPZ area or the Class III channel zone. However, subject to canopy retention requirements adopted by the Board (i.e. 60% OSC or 80% OSC), some trees in the Class II WLPZ would be available for harvest reducing the impact of loss of timber harvesting at levels to achieve maximum sustainable production (MSP). In the five year period from 1999 through 2003 there were 2,102 THPs in the eight counties with both timber harvesting and coho salmon. These counties are Del Norte, Humboldt, Trinity, Siskiyou, Santa Cruz, San Mateo, Sonoma and Mendocino.

Using these estimates, it is likely that there is some level of reduced harvesting in Class II and Class III watercourses as a result of the proposed regulations, and the adverse impact may be significant. Additionally, the impact of reduced harvesting is compounded by the requirements for Class II-standard "core zone" harvesting restrictions. There is no

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<sup>1</sup> The estimate does not include Class II watercourses which are not mapped on U. S. Geological Survey topographic maps because the additional prescriptions would not apply.

<sup>2</sup> Assumes a channel zone width of 10'

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information at this time to estimate the opportunity cost of forgone timber harvest from these areas.

This annual amount of areas in THPs being subjected to the proposed requirements for Class II and Class III watercourses may be substantially higher, as the proposed regulation for Class II and Class III also apply to areas outside coho watersheds. Conversely, many THPs in any given year may be in land ownerships that have Habitat Conservations Plans (i.e., HCPs) or other similar permits which are not subject to these proposed rules pursuant to 14 CCR § 916.9 [936.9, 956.9] subsection (w). These adjustments would have to factored into any estimate of the total land based affected annually by the Class II and Class III proposed regulations.

Considering the above cost estimates, the Board staff has determined that the proposed regulations would have an adverse economic impact on businesses, and such impact may be significant.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action except as described below. The proposed changes to the language for Class II watercourses under 14 CCR § 916.9 [936.9, 956.9] subsection (g) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids. The prescriptive standards are based on the science findings attesting to riparian conditions needed to protect riparian function and promote properly functioning salmonid habitat. This is expected to result in no significant adverse environmental impact at an individual site or on a cumulative basis when applied at a large scale across a watershed. The rules were developed to address all riparian functions that could potentially affect the beneficial uses of water and listed salmonid species, including heat exchange, water quantity and quality, sediment exchange, large wood exchange, and nutrient exchange,.

Options are contained in the proposed rules that: 1) reduce the Class II watercourse "Inner Zones" postharvest overstory canopy to 60%% for both the coho ESU and non-coho ESU areas, and 2) eliminate the "Core Zone" for all standard Class II watercourses in all T/I areas. These options have not been assessed as to their potential significant environmental affect. However, these options are less consistent with the Board's science literature review and represent a higher risk to environmental impacts to listed salmonids compared the T/I proposal without the options.

**14 CCR § 916.9 [936.9, 956.9] (h)**

**Class III Watercourses**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

Additionally, the proposed additional rule language under 14 CCR § 916.9 [936.9, 956.9] subsection (h) is necessary to reduce the contribution of sediment transported by Class III watercourses to aquatic habitat for listed anadromous salmon. Small headwater streams such as Class IIIs are prone to sediment delivery because of generally steep slopes, high stream density, and greater confinement compared to larger watercourses (SWC 2008). By definition, Class III watercourses are capable of delivering sediment to Class I and II watercourses. Sediment may be delivered by wind or water to the Class III watercourse from adjacent harvest units. Through the processes of bank erosion and downcutting, Class III watercourses themselves may also be an important source of sediment. The proposed measures will improve sediment management associated with Class III watercourse Equipment Limitation Zones (ELZs), relative to existing practices in the FPRs, during timber operations, as well as expedite the reestablishment of vegetation following timber operations.

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments to the language in 14 CCR § 916.9 [936.9, 956.9] subsection (h) are the proposed amendments for Class III watercourses. There are currently no T/I specific Class III watercourse rules for the T/I area. Standard requirements for Class III watercourses in the FPRs that apply in any area pursuant the Forest Practice Act currently apply to the T/I area.

The proposed amendments establish Equipment Limitation Zone (ELZ) and harvesting requirements for Class III watercourses. The proposed amendments for Class III watercourses rules are the same throughout both the coho ESU and non-coho ESU T/I areas. Science information reviewed did not provide definitive regional differences for the riparian functions and buffer strip design among the different regions within the T/I area.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsections (h) (1) (A)-(C) establish an ELZ up to 50 feet wide depending on hillslope gradient adjacent to the watercourse. Within the ELZ, no new construction of tractor roads is permitted, no

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ground based equipment is to occur on slopes >50%; and ground-based operations are limited to existing stable tractor roads, or to the use of feller- bunchers or shovel yarding.

Generally limitations on tractor yarding (skidding of logs) will minimize mechanical disturbance of soil which could be delivered to the Class III watercourse. Pyles et al. (2002) state that limiting the generation and transport of sediment should be the primary focus of Class III watercourse protection zones. SWC (2008) reported that for small headwater streams, it is appropriate to limit disturbance and compaction adjacent to the channel and upslope along the valley axis. They found that since surface erosion in near stream areas is accelerated by mechanical disturbance, equipment exclusion zones or other Best Management Practices can be effective at eliminating this form of management related erosion and sediment delivery to streams. SWC (2008) state that mechanical disturbance from management activities within about 30 feet of the channel often produces and delivers sediment to stream channels.

Even with the use of ELZs along non-fish bearing streams, sediment impacts have been documented. Rashin et al. (2006) reported that equipment exclusion zones along nonfish bearing streams without stream buffers in Washington were generally ineffective, with the exception of ground-based yarding practiced under certain conditions. They found that along unbuffered headwater streams, bank erosion following disturbance from yarding can be extensive (Rashin et al. 2006). In northwestern California, Lewis et al. (2001) concluded that sediment increases in North Fork Caspar Creek tributaries probably could have been reduced by avoiding activities that denuded or reshaped the banks of the small headwater channels. Cable yarding occurred in Caspar Creek and heavy equipment was not operated near stream channels.

O'Conner et al. (2007) did not find that increased protection for Class III channels with a Habitat Conservation Plan (HCP) in Humboldt County resulted in reduced observed sedimentation, possibly due to differing numbers of post-harvest winter periods (and stressing storm intensities) for the different treatments. Their data suggested that erosion and sedimentation processes in Class III watersheds were not strongly differentiated in magnitude or process from Class II watersheds. Similarly, Cafferata and Munn (2002) reported that Class III watercourse transects that were monitored in 2000 and 2001 had a total of 0.5 erosion features per mile, approximately the same as that found for larger Class I and II watercourses.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsections (h) (2) and (3) require the retention of all pre-existing large wood on the ground in the ELZ that is stabilizing sediment, as well as all pre-existing down wood and debris in the channel zone. Past studies conducted in California support the need for these requirements. GDRCO (2002) conducted a retrospective Class III study in Humboldt County and reported that wood was the predominant element in the formation of channel bed grade control points—indicating the value of wood in Class III channels. Lewis et al. (2001) reported that small headwater channels in the North Fork Caspar Creek watershed located in western Mendocino County subjected to intense broadcast burns showed increased erosion from the loss of woody debris that stores sediment and enhances channel roughness. Annual surveys evaluating bank stability, vegetative cover, and sediment

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storage potential suggested that the greatest sediment production and transport potential existed in the burned channel reaches.

14 CCR § 916.9 [936.9, 956.9] subsection (h) (2) contains Optional Amendment 15. Optional Amendment 15 requires only non merchantable wood to be retained in the ELZ for soil stabilization. Optional Amendment 15 a mutually exclusive option. The Board must select either the proposed language in (h)(2) or Optional Amendment 15. Option 15 provides for greater consideration of reducing the economic impact of this subsection by limiting the retention of large wood to only those pieces that are of low or no commercial value. It places lower priority on maintaining large wood which is functioning to stabilize sediment and prevent downstream movement of material into fish-bearing watercourses.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (h) (4) require the retention of hardwood trees in the ELZ, where feasible. The retention standard for hardwoods is intended to promote sediment management by retaining current and future sources of woody debris to interrupt transport of sediment at the soil surface, as well as to maintain soil stabilizing root systems and litter fall to provide surface cover. It also promotes of preferential variety of litter that is an important food source for downstream macroinvertebrates and thus indirectly supports salmonid production (SWC, 2008)(CBOF-TAC, 2007) . This standard is intended to ensure that where hardwood dominated stands are proposed for regeneration to conifer, some of the existing live trees are retained to assist in stabilizing the ELZ and provide for other riparian functions.

14 CCR § 916.9 [936.9, 956.9] subsection (h) (4) contains Optional Amendment 16 and 17. Optional Amendment 16 requires only non merchantable hardwoods to be retained in the 30 foot ELZ. Optional Amendment 16 is a mutually exclusive Option. The Board must select either the proposed language in (h)(4), Optional Amendment 16, or Optional Amendment 17. Option 16 provides for greater consideration of reducing the economic impact of this subsection by limiting the retention of hardwood trees to only those of low or no commercial value. It places lower priority on maintaining hardwoods which function for soil stabilization and organic material input to the watercourse.

Optional Amendment 17 would require retention of hardwood to be applicable up to the full extent of the 50 foot ELZ verses the proposed language of restriction in only the first 30 foot ELZ. Optional Amendment 17 is a mutually exclusive Option. The Board must select either the proposed language in (h)(4), Optional Amendment 16, or Optional Amendment 17. Option 17 provides for greater consideration of the primary need for the hardwoods which are to function for soil stabilization and organic material input to the watercourse. The Option may have a minor economic impact in that it could result in requiring additional amounts of merchantable hardwood trees to be retained

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsections (h) (5) and (6) require the retention of snags (standing dead trees) and small trees (often seedlings or small trees less than 6 inches dbh) in the ELZ. Retention of small trees is limited to “countable” trees, meanings only those that are necessary to meet minimum stocking standards. This allows some thinning of small trees in the ELZ to foster accelerated tree

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growth on remaining stems and to contribute to maximum sustainable production while providing for the soil stabilization function performed by these small trees. Retention of snags and small trees will promote sediment management by retaining current and future sources of woody debris to intercept sediment before it reaches the watercourse and stabilize sediment, preventing prevent rapid downstream movement of material into fish-bearing watercourses, as well as maintaining soil stabilizing root systems.

14 CCR § 916.9 [936.9, 956.9] subsection (h) (6) contains Optional Amendment 18 and 19. Optional Amendment 18 requires only non merchantable “countable trees” to be retained in the ELZ. Optional Amendment 18 is a mutually exclusive Option. The Board must select either the proposed language in (h)(6), Optional Amendment 18, or Optional Amendment 19. Option 18 provides for greater consideration of reducing the economic impact of this subsection by minimizing the retention of small trees to only those that have low or no commercial value.

Optional Amendment 19 would require retention of countable trees to be applicable to the full extent of the 50 foot ELZ verses the proposed language of restriction in only the first 30 foot ELZ. Optional Amendment 19 is a mutually exclusive Option. The Board must select either the proposed language in (h)(6), Optional Amendment 18, or Optional Amendment 19.. Option 19 provides for greater consideration of the primary need for countable trees which is to function for soil stabilization near the watercourse. This option may have a minor economic impact in that it could result in requiring additional amounts of merchantable small trees to be retained in the ELZ, diminishing the opportunity for thinning the residual trees and fostering MSP.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (h) (7) require the retention all trees in the ELZ and channel zone which show visible indicators of providing bank or bed stability . The retention of these existing trees within the channel zone and ELZ will reduce erosion of the channel and watercourse banks. Some of these trees will be uprooted by strong winds following timber operations, which will likely deliver some sediment associated with the tree roots into the Class III watercourse where it will eventually be transported down to fish-bearing watercourses. In the short term this effect will be adverse. However, in most cases, the root mass and remainder of the tree bole will have longer term beneficial effects for sediment management.

Because Class III watercourses flow only in direct response to rainfall, retaining conifers to shade watercourse channels for water temperature issues is not a concern. Roots of vegetation help to develop stabilize stream banks by binding soil in place, and provide resistance to erosive forces of flowing waters, especially the root masses of live trees, shrubs, and herbs nearest the channel (CH2M-Hill and Western Watershed Associates 1999). Pyles et al. 2002 concluded that including a condition requiring retention of trees having some function for bed or bank stability was appropriate for coastal Class III watercourses in Humboldt County. Also, the GDRCO (2002) retrospective Class III watercourse study conducted in Humboldt County provides data indicating the importance of wood in small headwater channels.

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The proposed language excludes retention of sprouting trees, such as coast redwoods, where the boles do not overlap the channel zone. This results in retaining the most critical living root mass of redwood trees while allowing for harvesting of some of the redwood trees that are not directly contributing to bank stability. The proposed amendment also provides guidance for determining which trees are to be retained, as not all trees in the ELZ or channel zone of Class III watercourse may be necessary for providing bank or bed stability.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (h) (7) specify that the exceptions pursuant to 14 CCR § 916.9 [936.9, 956.9] subsections (e) (A)-(F) permitted for channel zones also apply for Class III watercourse ELZs. This results in greater flexibility for timber operations in Class III watercourse ELZs.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Require expanded ELZs only when Class III watercourses are adjacent to even aged managed lands.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Require Equipment Exclusion Zones for 30 feet from WTL.

This alternative was rejected as it was found to be unnecessarily burdensome and creates an adverse economic impact. It was found to provide no better protection of the beneficial uses of water and riparian functions verses the proposed use of an Equipment Limitation Zone with the conditions provided in the proposed rule.

3. Not include the proposed regulations.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing Class III watercourses.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

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**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that this regulation could potentially result in a minor significant adverse economic impact on businesses conducting timber operations in T/I watersheds. However, the costs associated with the requirements imposed by the new regulations are difficult to estimate, as they vary greatly. The Board staff estimated that this regulation could potentially result in long-term costs that would vary greatly depending on, but not limited to: 1) the current condition of the watershed, (i.e., beneficial uses of water, riparian habitat, or others), 2) the topographic and geologic features affecting harvesting practices, 3) the affected area under the control of the plan submitter, and 4) the long-term land management goals of the plan submitter.

The protection measures currently provided in the rules and those that are proposed under this rulemaking package are anticipated to provide the means to secure restoration over a long period of time in most instances. Therefore, some cost will be incurred over time and will not significantly impact the overall cost of land management. Considering the broad range of circumstances that would affect costs associated with the new requirements, the Board has determined that estimations of the potential cost for this regulation would be difficult to present in a format that would provide for meaningful public disclosure. However, the following estimations of costs associated with various portions of the proposed rules are provided for consideration.

These regulations are likely to have a modest negative cost impact to landowners. The primarily negative cost impacts are due to a: 1) reduction of available land for timber management in Class III watercourses, and 2) the minor expanded width for the equipment limitations zone, and 3) retention of merchantable down logs and hardwoods.

The following table summarizes, in qualitative terms, the positive and negative economic impact to landowners of the proposed rules compared to the existing T/I rules.

**Summary of economic impacts related to Class III watercourses**

<b>Rule section or topic</b>	<b>Negative economic impacts for Class III watercourses</b>
Class III	<ul style="list-style-type: none"> <li>▪ Requires establishment of a minor expanded width for the equipment limitations zone resulting in additional operating costs.</li> <li>▪ Requires retention of trees needed for bank stability within the Class III channel zone. This requirement is very similar to the existing T/I rules, and provides clarity on the expectation of Class III channel zone tree retention. This change does not result in a substantial cost impact.</li> <li>▪ Retention of merchantable down logs and hardwoods in ELZs.</li> </ul>

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Detailed quantitative estimates or ranges of negative economic impacts to landowners have not been made. However, one method of determining cost impacts is to focus on the change in availability of timberland (meaning how much timber can or cannot be harvested) along Class III watercourses resulting from the rule change. This is the most significant cost impact for the Board to consider because it results in the greatest magnitude of cost impact to landowners (landowners could lose or gain a significant amount of money as a result of the change in rules for Class III watercourses).

The economic impact related to excluding harvest of trees that provide bed and bank stability is not expected to be a substantial cost. This is because the existing T/I regulations have some limitation on harvesting Class III channel zone trees. Additional requirements for retention of trees in the channel zone or ELZ are not likely to substantially change current operating procedures for harvesting in Class III channel zones in T/I areas.

Considering the above cost estimates, the Board staff has determined that the proposed regulations would only have a modest adverse economic impact on businesses.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action except as described below. The proposed changes to the language for Class III watercourses under 14 CCR § 916.9 [936.9, 956.9] subsection (h) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids. The prescriptive standards are based on the science findings attesting to riparian conditions needed to protect riparian function and promote properly functioning salmonid habitat. This is expected to result in no significant adverse environmental impact at an individual site or on a cumulative basis when applied at a large scale across a watershed. The rules were developed to address all riparian functions that could potentially affect the beneficial uses of water and listed salmonid species, including heat exchange, water quantity and quality, sediment exchange, large wood exchange, and nutrient exchange

**14 CCR § 916.9 [936.9, 956.9] (i)      Section Reserved for Future Use**

This section was deleted and replaced with amendments for large woody debris in section 14 CCR § 916.9 [936.9, 956.9] subsection (f). The index number is reserved to retain index numbering familiarity for users and for future information to use in this index section without requiring reindexing of all other subsequent subsections.

**14 CCR § 916.9 [936.9, 956.9] (j)**      **Inner gorge**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (j) adds a title to the subsection and is a non substantive change.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing erosion potential from erosion impacts from operations in inner gorges.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

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The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR 916.9 (p) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (k)**

**Year-round logging road, landing and tractor road use limitations**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) are intended to reorganize this section to address year-round road, landing, and tractor use, instead of just those related to the winter period. Specific requirements for the winter operations have been deleted and are consolidated and revised in section 14 CCR § 916.9.9 [936.9, 956.9] subsection (l). The amendments for this reorganization were derived from the Board's Interagency Road Rule Committee recommendations to the Board in July 2008. The amendments made under this section are generally re-organizational in nature. The proposed rules ensure that minimum operating standards to minimize significant erosion and prevent sediment delivery to streams from road related operations.

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) adds a title to the subsection and is a non-substantive change.

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The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) (1) reintroduces the specifications and descriptions of resultant impacts that must be avoided that were deleted from the “saturated soil condition” definition proposed amendment in 14 CCR § 895.1. Implied in this subsection, is a Board finding that some logging operations, such as skidding on landings on roads, are permitted where saturated soils are found as long as turbid water does not reach watercourse.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) (2) reintroduces the specifications and descriptions of resultant impacts that must be avoided that were deleted from the “stable operating surface” definition amendment. The amendment prohibits log hauling where there is not a stable operating surface, regardless of the potential/risk to impacts of sedimentation to watercourses. Hauling is intended to be permitted when minor ponding results from dry season road watering during dust abatement.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (k)(3) is a new measure which expands the area to be treated for erosion control to avoid adverse sediment discharge into watercourses. It is specifically designed to address watercourse crossing approaches that may be outside of WLPZ. The proposed amendment in this section add consistency with rules developed in cooperation with DFG for assistance in incidental take permitting in 14 CCR § 923.9.2 as default protection measures in coho watersheds where DFG has determined take will or is likely to result.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) (4) reintroduces a subsection proposed for deletion under 14 CCR § 916.9.9 [936.9, 956.9] subsection (n) (2) (Optional Amendment 20) for treatment of erosion for roads in the WLPZ.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) (5) reintroduces subsection proposed for deletion under 14 CCR § 916.9.9 [936.9, 956.9] subsection (l) for reorganizational and clarity purposes. The amendment pertains to a prohibition of grading wet roads and contains no changes to the language.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

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This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing erosion control for road use.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (l)**

**Winter period operations**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

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**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (l) are intended to reorganize this section to address any timber operation during the winter period of October 15<sup>th</sup> through May 1<sup>st</sup>. Specific requirements for winter operations deleted from 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) are consolidated and revised in this subsection. The amendments for this reorganization were derived from the Board's Interagency Road Rule Committee recommendations to the Board in July 2008. The amendments made under this section are generally re-organizational in nature. The proposed rules ensure that minimum operating standards to minimize significant erosion and prevent sediment delivery to streams from timber operations conducted during the winter period.

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (l) adds a title to the subsection and is a non substantive change.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (l) (1) and (2) reintroduces subsections proposed for deletion under 14 CCR 16.9.9 [936.9, 956.9] subsection (k) with no substantive changes for purposes of organization clarity of the FPRs.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (l) (3) reintroduces the specifications and descriptions of resultant impacts that must be avoided that were deleted from the "saturated soil condition" definition proposed amendment in 14 CCR § 895.1. Implied in this subsection, is a Board finding that some logging operations, such as skidding on landings and roads, are permitted where saturated soils are found as long as turbid water does not reach watercourse.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (l) (4) reintroduces the specifications and descriptions of resultant impacts that must be avoided that were deleted from the "stable operating surface" definition amendment. The amendment prohibits log hauling where there is not a stable operating surface, regardless of the potential/risk to impacts of sedimentation to watercourses. Hauling is intended to be permitted when minor ponding results from dry season road watering during dust abatement.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

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2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing erosion control for winter operations.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR 916.9 (l) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (m)      Tractor Road Drainage Facility Installation**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

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**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (m) adds a title to the subsection and is a non substantive change.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing drainage installation.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR 916.9 (m) is intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (n)      Treatments to Stabilize Soils**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

This subsection provides for soil stabilization measures to minimize soil erosion and prevent discharge of sediment into WLPZ, Equipment Exclusion Zone (EEZ), or Equipment Limitation Zone (ELZ). The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (n) are intended to delete, reorganize, or rephrase existing subsections for clarity and brevity. A substantive change is proposed in subsection (n) (4) in Option 21. The amendments were derived from the Board's Interagency Road Rule Committee recommendations to the Board in July 2008. The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (n) adds a title to the subsection and is a non substantive change.

The proposed amendment to the introductory paragraph in 14 CCR § 916.9.9 [936.9, 956.9] subsection (n) adds reorganization and terminology changes and are non-substantive changes.

The proposed amendment to 14 CCR § 916.9.9 [936.9, 956.9] subsection (n)(1) deletes the exiting subsection and moves language to the introductory paragraph (as described above); reintroduces deleted language into 14 CCR § 916.9.9 [936.9, 956.9] subsection (l) which address winter period soil stabilization requirements; and reintroduces language into subsections (n) (5) and (6). These are non-substantive changes.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (n) (2) is Optional Amendment 20. It deletes the existing section (2) and reintroduces the content into 14 CCR § 916.9.9 [936.9, 956.9] subsection (k) (4) for organizational clarity. This is a non-substantive change.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (n) (3) involves renumbering the sections for consistency with deletions made under subsection (n) (1) and (2) above. It is assigned as subsection (1). Other non substantive grammatical and clarity edits are made.

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The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (n) in an unindexed subsection regarding soil stabilization methods using mulch are edited for clarity and language deleted is reintroduced in subsection (n)(3). These are non substantive grammatical and clarity edits.

Language deleted from this subsection regarding slash mulch standards is reintroduced into subsection (n) (4). This section includes Optional Amendment 21. This option provides for a 75% minimum slash ground coverage, compared to the exiting standard of 90%, when the slash is machine packed. This amendment is not mutually exclusive of the proposed language in (n) (4) and may be included or excluded by the Board with no other effects on the proposed regulation in (n) (4). Optional Amendment 21 provides greater flexibility for methods to provide slash mulching. It was recommended by the Board's Interagency Road Rule Committee in July 2008.

The proposed amendment under 14 CCR § 916.9.9 [936.9, 956.9] subsection (n)(4) are deleted and reintroduced with minor modification for clarity and in subsection (n) (7). The amendment provides greater flexibility for methods to improve the natural ability of the ground cover to filter sediment. The amendment was recommended by the Board's Interagency Road Rule Committee in July 2008.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing soil stabilization and erosion control.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR 916.9 (n) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (o)      Erosion Site Identification and Remedies**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (o) adds a title to the subsection and is a non substantive change. Other non substantive change are made for clarity. These include the term “active erosion” being deleted as it is undefined and replaced in this section to mean erosion and sediment production during any time of year.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

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This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing soil stabilization and erosion control.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR 916.9 (o) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (p)      Erosion Control Maintenance Period**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

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**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (p) adds a title to the subsection and is a non substantive change.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing erosion control.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR§ 916.9 [936.9, 956.9] subsection

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(p) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (q)**

**Site Preparation**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (q) adds a title to the subsection and is a non substantive change.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing erosion control during site preparation.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

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**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9 [936.9, 956.9] subsection (q) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (r)**

**Water drafting**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9]. Additionally, the existing water drafting rules create redundant documentation requirements with DFG code § 1600 et seq. Streambed Alteration Agreements.

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9]. Additionally, there is a need to avoid or reduce duplicative information documentation that adds unnecessary cost to the THP preparation process. Addressing the public problem of redundant permitting requirement is also needed to contribute to the Board's goals for the T/I rule update of providing greater permitting efficiency for landowners and public agencies through incorporation of regulatory language that provides consistency with DFG requirements.

**SPECIFIC PURPOSE OF THE REGULATION**

This subsection establishes basic requirements for water drafting to ensure waterflows are maintained for habitat for listed salmonid species and other beneficial functions of the riparian zone. It is intended to prevent adverse effects on water-related values that could result from improper water drafting operations. Drawing water through water drafting operations from watercourses can adversely affect aquatic species in several ways: (i)

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too much water can be withdrawn to allow continued migration or reproduction of fish and other vertebrates, (ii) individuals can be sucked up through water intakes, (iii) construction and use of water holes and approaches can generate sediment and allow petroleum or other contaminants into the water. This subsection is intended to reduce or eliminate these effects by requiring specific, detailed information be included in the plan for agency and public review prior to approval of the operations.

The proposed amendments deletes the existing rule language and replaces it with new language that clarifies the information necessary for disclosure and evaluation of water drafting projects in THPs; clarifies compliance with Fish and Game Code section 1600 et seq. for Lake and Streambed Alteration notification, and provides basic water drafting operational requirements unless otherwise specified in a Lake and Streambed Alteration Agreement issued by DFG. Optional Amendment 25 amends the existing rule language to eliminate water drafting documentation requirements, eliminate inclusion of water drafting plans in THPs, and limit disclosure of water drafting projects to those projects not previously permitted. The proposed language and the option are mutually exclusive, meaning the Board must choose only one, not both.

The most substantive change in the proposed amendment (but not in Optional Amendment 25) is the requirement contained in 14 CCR § 916.9 [936.9, 956,9] subsection (r) (1) that requires notification to DFG under Fish and Game Code § 1600 et seq. Streambed Alteration Agreements for water drafting operations. Additionally, notification under DFG code section 1600 is required for all drafting operations. Existing rule language prohibits water drafting under certain circumstances unless the RPF provides a drafting plan and, if necessary, a DFG issued Streambed Alteration Agreement.

Other substantive changes that included in the proposed amendment include new disclosure information requirements:

- (r)(2)(E) - Describe the estimated drainage area (acres) above the point of diversion;
- (r)(2)(I) - Describe the methods that will be used to measure source streamflow; and, new requirements for conduct of water drafting:
- (r)(3)(C) - Barrier installation to prevent sediment transport; and
- (r)(3)(D) - Use of drip pans to capture motor oil or hydraulic fluid leaks.

Other substantive changes proposed in Optional Amendment 25 include:

- (r) - An exception to allow significant stream flow reductions during critical low water periods pursuant to a DFG Lake and Streambed Alteration Agreement;
- (r)(3) - Information disclosure requirements would be limited to new water drafting locations not already permitted; and
- (r)(3)(G) - Elimination of the requirement for operators to keep a water drafting record log.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include proposed amendments.

This alternative was rejected as it would not address the public problem and would not contribute to the Board’s goals for the T/I rule update of providing greater permitting efficiency for landowners and public agencies through incorporation of regulatory language that provides consistency with FGC statute and CEQA project disclosure requirements. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing water drafting.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are additional costs associated with the proposed amendment to the rules beyond those that exist already, if this proposal is selected instead of Optional Amendment 25. These costs are related to additional requirements under the Forest Practice Rules for project information and for the conduct of water drafting. There is no estimation of the cost of the additional requirements under Optional amendment 24. However, it is likely that a few hundred to several thousands of dollars per each drafting site could be incurred due to additional operating requirements, if operators are not already implementing erosion control or pollution control measures as routine. This cost may be partially offset by a reduction in duplicative information disclosure for the THP and the DFG code § 1600 et seq. Streambed Alteration Agreement notification.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR 916.9 [936.9, 956,9] subsection (r)

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are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (s)      Exemption notices**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

Exempt timber operations (per 14 CCR § 1038 et seq.) are not subject to a focused interagency environmental review, so their potential impacts to salmonids cannot be fully evaluated to determine if the standard measures for protection are adequate to prevent take of a species. This subsection is intended to significantly restrict operations conducted under an exemption notice from the zones established to protect water-related values.

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (s) adds a title to the subsection and grammatical changes. These are non-substantive changes.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for exemptions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9.9 [936.9, 956.9] subsection (s) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (t)**

**Emergency notices**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

Emergency timber operations (per 14 CCR § 1052) are not subject to a focused interagency environmental review, so their potential impacts to salmonids cannot be fully evaluated to determine if the standard measures for protection are adequate to prevent take of a species. This subsection is intended to significantly restrict operations conducted under an emergency notice from the zones established to protect water-related values; requiring the retention of a certain level of stocking, a certain number of dead

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trees for large woody debris recruitment, and requiring that the areas be restocked to enhance recovery of the riparian vegetation.

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (t) add a title to the subsection and grammatical changes. These are non substantive changes.

14 CCR § 916.9.9 [936.9, 956.9] subsection (t)(7)(A) describes exceptions to prohibitions on dead tree harvesting when certain amounts of large trees are retained in Class I WLPZs. The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (t)(7)(A) deletes existing language describing the requirement for retention of large trees and replaces it with Class I watercourse large tree standards described in 14 CCR § 916.9.9 [936.9, 956.9] subsection (f) for Class I watercourses. This results in retaining the same number of large trees in the WLPZ as the existing T/I rules for emergency notice operations in the coho salmon ESU. It also results reducing the number of large trees to 7 trees per acre in the WLPZ areas outside the coho ESU. This reduction is consistent with the science basis for large tree retention stated in the proposal for Class I watercourse in 14 CCR § 916.9.9 [936.9, 956.9] subsection (f)(5).

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (t) (7) (A) also include requiring large tree retention for Class II Large watercourses. The standards are consistent with amendment proposed for Class II Large watercourses in 14 CCR § 916.9.9 [936.9, 956.9] subsection (g). (13 largest trees per acre in the coho ESU and 7 largest trees per acre outside the coho ESU).

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an unclear set of regulations for addressing protection of the beneficial uses of water and riparian functions. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for exemptions.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are costs associated with this proposed revision to the rules beyond those that exist already. The primary negative cost impact is due to a 1) the lost opportunity cost associated with leaving large trees in Class II Large WLPZs during emergency notice operations and 2) the RPF time necessary to designate the large tree. The proposed regulations impose additional specific requirements for timber operations in this section and these results in an additional adverse economic impact on businesses. The level of significance of these costs is variable and is not estimated.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9.9 [936.9, 956.9] subsection (t) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (u)**

**Salvage logging**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (u) adds a title to the subsection and is a non substantive change.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include reorganizational edits.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of the beneficial uses of water and riparian functions.

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2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing salvage logging. It would also not contribute to restoration of habitat, recovery of the species or consistency with Public Resource Code 4513.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9.9 [936.9, 956.9] subsection (u) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (v)**

**Site specific measures or nonstandard  
operational provisions**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER  
CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO  
ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

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## **NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

Additionally, a major finding from the Board's scientific literature review of riparian buffer requirements for timber operations was to provide for a site specific approach to measures to replace otherwise applicable prescriptions. A site specific (spatially-explicit) approach to riparian management that addresses site and regional variability as well as disturbance processes in riparian areas was supported by: 1) the 2008 BOF scientific literature review (SWC 2008), 2) a consensus opinion by the assembled 'experts' that attended the October 23 2008 BOF meeting, and 3) the Board's TAC. (SWC contractor and selected TAC member letter, April, 2009). A spatially-explicit approach to riparian management was also advocated in the Northwest Forest Plan and by various national forests (FEMAT 2006, Everest and Reeves 2006). Development of an approach that addresses watershed and site variability on a plan specific basis, provide for appropriate protection, contribute to restoration of salmonid habitats, and provide flexibility for landowners developing timber operational requirements and silvicultural prescriptions for WLPZ and other portions of T/I watersheds.

The amendments are also proposed to address suggested barriers to approaches in existing in-lieu practices or alternative practices pathways contained in the FPRs to facilitate site specific WLPZ plans as part of THPs.

## **SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendment is intended to provide an opportunity for the landowners to propose a site specific measure or measures to replace otherwise required prescriptions. It provides objectives needed to be accomplished by site specific plan, requirements to be included in a site specific plan, and review and approval processes. The proposed amendments would delete exiting T/I language in 14 CCR § 916.9 [936.9, 956.9] subsections (v),(w), and (x).

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (v)(1) establishes the goals and objectives of the site specific plan. Goals and objectives are needed to ensure the site specific plan would result in effects to the beneficial functions of the riparian zone that are equal to or more favorable than prescriptive standards. This section contains Optional Amendment 26. Optional amendment replaces the text proposed in subsection (v)(1). It deletes the requirements that the site specific plan must or exceed the results of the prescriptive standards, and only requires a site-specific plan to meet objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (a) and (c). This option is mutually exclusive to text proposed in subsection (v) (1). The Board must choose one of the two proposals and cannot choose both.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (v)(2) establish the pathways to develop and approve a site specific plan. These include an "evaluation of the beneficial functions of the riparian zone", or "consultation and written concurrence

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from DFG prior to plans submittal”. The DFG consultation pathway is expected to be used for minor site specific/non standard practices.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (v)(3)(A) establish the required components for the site specific pathway for using an evaluation of the beneficial functions of riparian zone. This pathway is intended for more complex site specific plans and requires substantial documentation on current conditions, beneficial uses that may be affected, assessment of the risks to salmonids due to implementing the plan, a description of the proposed site specific measures, and an implementation schedule.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (v)(4) establishes the standards that must be met for approval of site-specific plans. These include inclusion of best available science, identification of potential significant adverse impact, identification of feasible systems to avoid or mitigate significant adverse impacts, retaining an RPF to communicate plans to timber operators, and which prescriptive standards are replaced by the proposed site specific measures.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (v)(5) state the FPRs which cannot be replaced by any site-specific plan. These include rules for Coastal Commission Special Treatment Areas, and special treatment areas adjacent to wild and scenic rivers.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (v)(6) establish additional agency review and acceptance processes. This includes the director not accepting any measures if two or more agency comments lead to the Director's conclusion that the site-specific measures will not achieve the goals of the section. This section contains Optional Amendment 27 and Optional Amendment 28.

Optional Amendment 27 makes explicit that the site specific measures need to meet the goals and objectives of 916.9 (a) and (c) and would result in improved beneficial function for the riparian zone. The site specific measures would not have to provide equal or more favorable results than the prescriptive requirements in 14 CCR § 916.9.9 [936.9, 956.9]. It also eliminates the necessity for the director to rely upon two or more agencies in accepting or rejecting site specific measures. Optional Amendment 27 replaces the text proposed in subsection (v)(6). This option is mutually exclusive to text proposed in subsection (v) (6). The Board must choose among the proposed amendment, Optional Amendment 27, or Optional Amendment 28.

Optional Amendment 28 makes explicit that the site specific measures need to meet both the goals and objectives of 14 CCR § 916.9.9 [936.9, 956.9] subsections (a) and (c) and would provide equal or more favorable results than the prescriptive requirements in 14 CCR § 916.9.9 [936.9, 956.9]. It also eliminates the necessity for the Director to rely upon two or more agencies in accepting or rejecting site specific measures. Optional Amendment 28 replaces the text proposed in subsection (v)(6). This option is mutually

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exclusive to text proposed in subsection (v) (6). The Board must choose among the proposed amendment, Optional Amendment 27, or Optional Amendment 28.

The proposed amendments in 14 CCR § 916.9 [936.9, 956.9] subsection (v)(7) clarifies that site specific plans pursuant to this section are not subject to limitations or requirements of other non standard practices such as those in 14 CCR §§ 897, 914.9 [934.9, 954.9], in lieu practices pursuant to 14 CCR § 916.1 [936.1, 956.1], or alternative prescriptions. This expresses the Board's intent to provide a separate pathway for site specific plans to meet the objectives for T/I watersheds and improve habitat conditions.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not provide for a site specific plan.

This alternative was rejected as it would not address the public problem or necessity of the rule and would provide for a set of prescriptive regulations that do not provide for landowner flexibility.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and not provide for provide for flexibility landowner to provide appropriate protective measures that more greatly contribute to restoration.

3. Include the Spatially Explicit Riparian Management (SERM) by Benda, Martin, Liquori 2009 that presented to the Board in February 2009

This alternative was rejected as it did not at this time provide the detail and regulatory content necessary to provide for regulatory enforcement.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations is voluntary and does not impose any additional mandatory specific requirements for timber operations and does not impose an additional significant adverse economic impact on any

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business. However, it is recognized that those choosing to develop a site specific could incur significant costs related to preparing the site specific plan pursuant to the proposed regulation.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR 916.9 (t) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (w)**

**Excluded plans**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments under 14 CCR § 916.9 [936.9, 956.9] subsection (w) excludes certain plans from the requirements of the T/I rules if they have other legal agreements that address listed anadromous salmonids. They are necessary to avoid duplicative and potentially conflicting regulations for the protection of listed salmonids being applied to timber operations when timberland owners have received authorization for incidental take of salmon as a result of a processes that is independent of the Board's regulations.

The proposed amendment clarifies the types of agreements that are excluded from the T/I rules. The proposed amendments provide an expanded list of excluded plans and greater specificity to the types of plans excluded from the T/I rules and replaces the existing under subsection (w).

Additionally, the subsection was reindexed by deleting subsection (w) and relabeling it as subsection (y). This is a non-substantive change.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not include an expanded listed of excluded plans.

This alternative was rejected as it would not address the public problem and would result in duplicative regulatory systems.

2. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations.

3. Include Program Timber Environmental Impact Reports as an excluded plan.

This alternative was rejected as these plans can already be excluded if they have the appropriate authorizations for incidental take or other legally approved authorizations for listed species.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9[936.9, 956.9] subsection (w) are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.9 [936.9, 956.9] (z)**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

**SPECIFIC PURPOSE OF THE REGULATION**

This subsection establishes an expiration date to the all subsections in 14 CCR § 916.9 [936.9, 956.9]. The proposed amendments under 14 CCR § 916.9.9 [936.9, 956.9] subsection (z) is to delete the subsection. This effectively makes permanent the T/I rules in 14 CCR § 916.9.9 [936.9, 956.9].

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Let the regulations expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 916.9.9 [936.9, 956.9] are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids.

**14 CCR § 916.11 . [936.11, 956.11] Effectiveness and implementation monitoring**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

This section became effective in July 2000 as a result of the Board’s adoption of the T/I rules and it contains an expiration date that if not amended would result the rule being deleted. This would result in having an ineffective set of regulations for addressing protection of effectiveness monitoring.

**NECESSITY**

The proposed amendments are necessary to ensure an organized and effective set of regulations for effectiveness monitoring and avoid expiration of portions of this section.

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendment deletes the expiration date for these portions of the section. This results in the rule effectively becoming permanent for the any plan subject to the FPRs.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for monitoring timber operations in the WLPZ for effectiveness of the mitigations to protect WLPZs.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the

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proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those that exist already. The proposed regulations do not impose any additional specific requirements for timber operations in this section and do not impose an additional significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed change to the language is intended to ensure application of appropriate regulations and measures for effectiveness monitoring.

**14 CCR § 916.12. [936.12, 956.12]      Section 303(d) listed watersheds**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The T/I rules that became effective in July 2000 added requirements rules for Clean Water Act section 303 (d) listed waterbodies. These subsections are found throughout the FPRs. Consolidating these sections will provide a well organized set of FPRs will improve the rules' utility and clarity for the regulated public and enforcement agencies.

This section became effective in July 2000 as a result of the Board's adoption of the T/I rules and it contains an expiration date that if not amended would result the rule being deleted. This would result in having an ineffective set of regulations for addressing lean Water Act section 303 (d) listed waterbodies.

**NECESSITY**

The proposed amendments are necessary to ensure an organized and effective set of regulations for Clean Water Act section 303 (d) listed waterbodies, and avoid expiration of portions of this section.

**SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendment reintroduces requirements for cumulative affects analysis specific to Clean Water Act section 303 (d) listed waterbodies deleted from 14 CCR § 898 into this section. Amendments also delete the expiration date for the section.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD’S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Do not relocate requirements for cumulative affects analysis specific to Clean Water Act section 303 (d) listed waterbodies to 14 CCR § 916.9.12 [936.12, 956.12].

This alternative was rejected as it would not address the public problem this regulation is intended to address and the necessity of the rule. It would result in less organized rules and not contribute to clarity or enforceability.

2. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing protection of Clean Water Act section 303 (d) listed waterbodies.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules. The Board has determined that the potential cost for this regulation would be minimal; consisting of minor printing costs to the State if any costs are incurred. This cost would not exceed the costs normally incurred each year by CAL FIRE to print and distribute rule language to field personnel. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed change to the language is intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids and for protection of Clean Water Act section 303 (d) listed waterbodies.

**14 CCR § 923.3 [943.3, and 963.3]**

**Watercourse crossings.**

**PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

Additionally, portions of this section that became effective in July 2000 as a result of the Board's adoption of the T/I rules contains an expiration date that if not amended would result in the rules being deleted. This would result in having an ineffective set of regulations for addressing watercourse crossings.

**NECESSITY**

The proposed amendments are necessary to ensure an organized and effective set of regulations for watercourse crossing standards, and avoid expiration of portions of this section.

**SPECIFIC PURPOSE OF THE REGULATION**

This section addresses watercourse crossing drainage structures in regard to planning, construction, reconstruction, maintenance, and removal. Amendments to this section in July 2000 under the original T/I rule adoption added language to assure that all watercourses crossings are constructed to allow unrestricted passage of all life stages of fish. Additionally, this rule section required all new or reconstructed crossings to accommodate the estimated 100-year flood event, including associated debris and sediment loads.

The proposed amendment to 14 CCR § 923.3 [943.3, and 963.3] subsection (e) provides for exceptions to constructing or reconstructing permanent watercourse crossings to accommodate the estimated 100 year flood flow. The amendment excludes from the 100 year flood flow standards watercourse crossings that have remained intact following stressing storms. The term "stressing" storm means a storm that yields at least a ten year flood flow.

This amendment provides for reduction of cost impacts to landowners who must construct or reconstruct crossings to accommodate the 100 year flow. This amendment was recommended by the Board's Ad Hoc Road Rules Committee in draft proposed road rules submitted to the Board in 2008.

The amendment is Optional Amendment 30. It is not mutually exclusive of any other provision, meaning the Board could choose to include or exclude it with no affect on other sections. If the Board chooses to adopt this option, then the definition for stressing storm in 14 CCR§ 895.1 would be included. Otherwise the definition for stressing storm would be excluded from the adopted proposal.

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The proposed amendment to 14 CCR § 923.3 [943.3, and 963.3] subsection (g) adds language to make specific that the culvert design requirement in the subsection apply only to Class I waters based on biological characteristics, essentially not requiring this standard for Class I watercourses classified due to the presence of domestic water supplies.

Amendments in this subsection contain Optional Amendment 31. This option deletes the requirement for Class I culverts to provide bedload to form a continuous bed throughout the length of the pipe. This option is included, since not all culverts in every situation require a continuous bed to facilitate movement of all life stages of salmonids. However, continuous bedload is preferential for salmonid habitat and greatly facilitates movement of all life stages of salmonids species. Optional amendment 31 would replace existing language and is a mutually exclusive option. This means that if the option is adopted it deletes the existing language. If it is not adopted, the existing language is retained. The Board must choose either the existing language or the option, not both. This amendment was recommended by the Board's Ad Hoc Road Rules Committee in draft proposed road rules submitted to the Board in 2008.

Amendments proposed in 14 CCR § 923.3 [943.3, and 963.3] subsection (g) also provide grammatical, non-substantive changes.

Proposed amendments to 14 CCR § 923.3 [943.3, and 963.3] subsection (e) delete the expiration date for the sections adopted in 2000 under the original T/I rules.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing watercourse crossing designs.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules. The amendments proposed under Optional Amendment 30 and 31

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could result in significant cost savings, as many culverts would not be constructed or reconstructed to accommodate a 100 year flood flow or designed for bedload to form a continuous bed throughout the length of the pipe, eliminating very costly design and construction items. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS**

The Board has identified potential adverse environmental effects from the proposed action. Optional Amendment 30 would result in a higher risk of significant watershed impacts due to the lack of design for watercourse crossings to accommodate a 100 year flood flow. Designing crossing to withstand a 10 year event is considerably different than designing for a 100 year event, and significantly increases the risk of catastrophic failure. The probability of adverse impacts is not known as there is no certainty that historically stable culverts will be damaged by higher volume floods flows and whether the damage would result in any significant adverse discharge of sediment. Similarly, Optional Amendment 31 would result in a higher risk of inadequate fish passage for all life stages, since bedload forming a continuous bed for the length of the pipe would not be required.

**14 CCR § 923.9 [943.9, and 963.9]**

**Roads and landings in watersheds with threatened or impaired values**

The public problem is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in 14 CCR § 916.9 [936.9, 956.9].

Additionally, this section became effective in July 2000 as a result of the Board's adoption of the T/I rules and contains an expiration date that if not amended would result in the rule being deleted.

**NECESSITY**

The necessity is the same as stated in the overarching discussion of the public problem on page 1 of the ISOR and in the Necessity section 14 CCR § 916.9 [936.9, 956.9].

In forested watersheds, since most sediment production from human sources is usually associated with the road system, this section addresses the potential adverse impacts from forest roads in a way that achieves the goals of 14 CCR § 916.9 [936.9, and 956.9] subsection (a). This is accomplished in this section by:

- Requiring the disclosure of the locations and specifications for road and landing abandonment or other measures to achieve no net increase in road density within the ownership within a watershed.
- Requiring construction of roads on a hillside that are as narrow and hydrologically invisible as possible.

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- Minimizing significant soil disturbance and displacement from hillside fills and excavated roadbeds.
- Providing for appropriate erosion control featured on steep road grades.
- Overdesigning drainage structures and erosion control features in historically high erosion risk areas or very remote locations.

### **SPECIFIC PURPOSE OF THE REGULATION**

The proposed amendments to this section are for organization clarity and greater flexibility in construction standards in suitable areas. Proposed amendments also delete the expiration date of the section, effectively making the section a permanent regulation for all areas under jurisdiction of the FPRs.

Proposed amendments to 14 CCR § 923.3 [943.3, and 963.3] subsection (a) is Optional Amendment 32. It modifies and reorganizes the requirements for disclosure of locations and specifications of proposed logging road and landings. It makes more general the requirements for disclosure of locations and disclosure of the offsetting mitigation measures needed for the road. Optional Amendment 33 deletes existing subsection (a) and would replace existing language with Option 33 language. This option is a mutually exclusive option. This means that if the option is adopted, it deletes the existing language. If it is not adopted, the existing language is retained. The Board must choose either the existing language or the option, not both. This amendment was recommended by the Board's Ad Hoc Road Rules Committee in draft proposed road rules submitted to the Board in 2008 .

Proposed amendments to 14 CCR § 923.9 [943.9, and 963.9] subsection (c) provide for a waiver for disposal of road spoils when the RPF can show natural retention features are sufficient to control erodible material. The existing rule states that spoils shall be disposed in areas with slopes less than 30% and outside WLPZs. This amendment provides a waiver to those requirements. Other non- substantive organization amendments are made to this subsection.

Proposed amendments to 14 CCR § 923.9 [943.9, and 963.9] subsection (e) include Optional Amendment 33. The amendment clarifies the criteria to be used to require enhanced/oversized structures in high-risk areas to prevent adverse environmental impacts (e.g., eliminates reference to somewhat vague specified values in 916.2(a)). This amendment also specifies that the methods of correction are stand alone options (not additive). This option would replace exiting language in subsection (e) if selected by the Board. This option is a mutually exclusive option. This means that if the option is adopted, it deletes the existing language. If it is not adopted, the existing language is retained. The Board must choose either the existing language or the option, not both.

Proposed amendments to 14 CCR § 923.9 [943.9, and 963.9], subsection (f) excludes certain plans from the requirements of the T/I rules if the plan is subject to other approved landscape level documents that address listed anadromous salmonids. This is necessary to avoid duplicative and potentially conflicting regulations for the protection of

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listed salmonids being applied to timber operations when timberland owners have received authorization for incidental take of salmon as a result of a processes that is independent of the Board's regulations. The proposed amendment clarifies the types of agreements that are excluded from the T/I rules and make it consistent with the list of plans excluded from the T/I rules proposed in 14 CCR § 916.9[936.9, 956.9] subsection (w).

Proposed amendments to 14 CCR § 923.9 [943.9, and 963.9] subsection (g) deletes the expiration date for the sections adopted in 2000 under the original T/I rules. Deleting the expiration is needed for ensuring an effective set of regulations for addressing road management planning and design standards.

**ALTERNATIVES TO THE REGULATION CONSIDERED BY THE BOARD  
AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES**

1. Let the regulation expire.

This alternative was rejected as it would not address the public problem and would result in having an ineffective set of regulations for addressing road management planning and design standards.

**ALTERNATIVES TO THE PROPOSED REGULATORY ACTION THAT  
WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS**

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective as and less burdensome to affected small businesses than the proposed regulatory action. No other alternatives to these proposed regulations were considered by the Board at this time.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT ADVERSE  
ECONOMIC IMPACT ON ANY BUSINESS**

The Board staff estimated that there are no significant costs associated with this proposed revision to the rules beyond those in the existing T/I rules. The amendments provide for greater flexibility for landowners to conduct road construction operations and may reduce construction costs. Therefore, the proposed regulations would not have a significant adverse economic impact on any business.

**POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND  
MITIGATIONS**

The Board has not identified any adverse environmental effects from the proposed action. The proposed changes to the language under 14 CCR § 923.9 [943.9, 963.9] are intended to ensure application of appropriate regulations and measures to ensure protection of anadromous salmonids. Proposed amendments to 14 CCR § 923.9 [943.9, and 963.9] subsection (c) could result in a higher risk of watershed impacts due to disposal of waste

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material from construction in WLPZs. The probability of adverse impacts is not known and review of these situations by the director and other reviewing agencies is likely to prevent significant adverse environmental effects.

**TECHNICAL, THEORETICAL, AND/OR EMPIRICAL STUDY, REPORTS, OR DOCUMENTS**

The Board of Forestry and Fire Protection consulted the following listed information and/or publications as referenced in this Initial Statement of Reasons. The information central to the Board's evaluation was scientific literature contained in the Board commissioned *Scientist Literature Review of Forest Management Effects on Riparian Function for Anadromous Salmoinds, conducted by Sound Watershed Consulting, 2008*. Other information was provided by the California State Water Resources Control Board, the California Regional Water Quality Control Boards, the California Department of Fish and Game, the California Department of Forestry and Fire Protection, the Monitoring Study Group of the California State Board of Forestry and Fire Protection, the Board staff, and other sources to address potential adverse impacts to watersheds with listed salmonids. Unless otherwise noted in this *Initial Statement of Reasons*, the Board did not rely on any other technical, theoretical, or empirical studies, reports or documents in proposing the adoption of this regulation.

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**Pursuant to Government Code § 11346.2(b)(6)**: In order to avoid unnecessary duplication or conflicts with federal regulations contained in the Code of Federal Regulations addressing the same issues as those addressed under the proposed regulation revisions listed in this *Statement of Reasons*; the Board has directed the staff to review the Code of Federal Regulations. The Board staff determined that no unnecessary duplication or conflict exists.

## **PROPOSED TEXT**

The proposed revisions or additions to the existing rule language are represented in the following manner:

UNDERLINE indicates an addition to the California Code of Regulations, and

~~STRIKETHROUGH~~ indicates a deletion from the California Code of Regulations.

All other text is existing rule language.

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