DEPARTMENT OF FORESTRY AND FIRE PROTECTION
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BOARD OF FORESTRY AND FIRE PROTECTION

October 19, 2012

Mr. Stan Dixon
California State Board of Forestry and Fire Protection
P.O. Box 944246
Sacramento, California 94244

Dear Mr. Dixon:

The California Department of Forestry and Fire Protection (CAL FIRE) has reviewed the proposal to adopt the regulations contained under 14 CCR §§ 916.9 [936.9, 956.9] (c)(4) and 916.9 [936.9, 956.9] (g) of the California Forest Practice Rules presented in the 45-day notice for *Class II-L Identification Methods Amendments, 2012*, circulated September 7, 2012. This comment letter addresses the proposed changes presented in that public notice, which will be discussed at the public hearing scheduled for November 7, 2012.

The rule package proposes to amend existing rule language pertaining to Class II-L watercourse identification. CAL FIRE supports the joint DFG-CAL FIRE plead language provided to the Board at their June 2012 meeting (attached). However, if this joint plead language is not acceptable to the Board, then CAL FIRE supports the currently noticed, 45-day rule package if the Board also adopts the changes provided attached to this letter. CAL FIRE believes the recommended changes provide for clarity, organization, and needed improvements involving Class II-L identification.

A staff member will be available at the Board meeting to discuss any pertinent issues that may arise.

Sincerely,

William E. Snyder

WILLIAM E. SNYDER
Deputy Director

cc: Duane Shintaku, Assistant Deputy Director, Forest Practice, Redding
Dennis Hall, Staff Chief, Forest Practice, Sacramento
Chris Browder, Deputy Chief, THP Administrator, Sacramento
Pete Cafferata, Deputy Chief, Hydrologist, Sacramento

Attachment

Anadromous Salmonid Protection Rules, 2012

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

Amend:

§ 916.9 [936.9, 956.9] Protection and Restoration in Watersheds with Threatened or Impaired Values.

Amend 14 CCR § 916.9 [936.9, 956.9] (c)(4):

(3) ****** an additional sediment filter on steeper slopes with high or moderate erosion hazard rating when tractor operations are proposed.

(4) Class II large watercourses (Class II-L): The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff as derived from long-term average precipitation data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA), (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Recruitment, delivery and retention of large wood in Class II- L type watercourses is also critical, as large wood increases sediment storage and decreases the rate of sediment transport to fish-bearing Class I watercourses. Other objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (c)(1) and (2) above for the Core Zone and Inner Zone are also desired objectives for Class II-L type watercourses.

(5) A primary objective for all WLPZs is to implement practices to maintain****

pursuant to 14 CCR § 916.5 [936.5, 956.5], map all Class II watercourses in the area of consideration on current 1:24,000 scale U.S. Geological Survey topographic maps and determine stream order following the stream order method in 14 CCR § 895.1. Second order and third order Class II watercourses are potentially Class II-L watercourses.

2. "Blue Line" streams: Watercourses mapped with a blue or black line on current 1:24,000 scale U.S. Geological Survey topographic maps that are not Class I are inferred to be Class II-L watercourses.

3. Drainage area: A calculated drainage area known to produce mid-late summer flow based on past plan experience or local knowledge for an ownership or local region and extrapolated over the ownership or local area can indicate Class II-L watercourses.

Deleted: a

(B) Field-based approaches to identify potential Class II-L watercourses: Determination of Class II-L watercourses shall be verified in the field by direct channel observations and local experience using one or more of the following approaches.

1. Determine by direct observation or by local knowledge of common mid-summer conditions if office mapped Class II-L watercourses contribute flow to a Class I watercourse at least through approximately July 15th following a year with at least average precipitation.

2. Observe channel characteristics such as channel width at bankfull stage, channel depth at bankfull stage, channel slope, mean entrenchment ratio, the presence of springs or seeps, and the presence of aquatic animal and plant life that require mid-summer flow.

3. Use continuous streamflow monitoring data from headwater

DRAFT

Attachment 2
Class II-L Identification Methods Amendments, 2012
Rule Proposal

California Department of Forestry and Fire Protection (CAL FIRE)
Comments
October 19, 2012

The following changes pertain to the 45-day public notice. Additional text is double underlined and deleted text is ~~double struck through~~.

1. Page 1, line 21: The following new language is required to add clarity on what constitutes "significant influx of water" (as used on line 15 of the plead). This language is supported by USEPA and USACE (2009), which denotes "wet channels" as those with continuous surface flow, or surface flow present but not spatially continuous. "Dry channels" are characterized as those with water absent, or no surface flow but at least one pool present. The Department believes that Class II-L watercourses must be "wet channels", as was described in the CAL FIRE and DFG (2010) Question and Answer document produced in 2010 for the Anadromous Salmonid Protection (ASP) rules. This language indicates that Class II-L watercourses can include "spatially intermittent" channels that contain short alternating wet and dry reaches. It also indicates that Class II-L watercourses can include situations where there is significant upstream surface flow above naturally occurring sediment deltas that have built up in the Class II watercourse channel located immediately above the confluence of a Class I watercourse, or where water is flowing subsurface due to anthropogenic (legacy) sediment or organic debris. The second sentence provides additional language clarifying that Class II-L watercourses are important both for providing watershed products such as cold water and nutrients to Class I fish-bearing watercourses, and for providing acceptable habitat for other organisms besides listed fish species in downstream Class I watercourses.

CAL FIRE suggests adding the following sentences:

> **(4) Class II large watercourses (Class II-L)**: The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply significant influx of water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff as derived from long-term average precipitation data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA), (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Class II-L watercourses may have either continuous surface flow, or surface

4. Pg 4, line 6-8: Class II channels that provide watershed products that support state and federally listed anadromous salmonids in downstream Class I watercourses or that provide habitat necessary to support the long-term viability of other coldwater dependent species do not necessarily have coarse gravel substrates in all situations. CAL FIRE does not believe the language used for typing Class II watercourses should be limited to coarse gravel bed channels. Streampower during peak winter storm events, should however, be sufficient to move coarse gravel down to a Class I watercourse. Additionally, the standard Wentworth classification system for stream particle sizes (Wentworth 1922; used in Bevenger and King 1995) includes the following categories: coarse gravel (0.63 in to 1.26 in [16 to 32 mm]), very coarse gravels (1.25 in to 2.5 in [32 to 64 mm]), and small cobbles (2.5 in to 5 in [64 to 128 mm]). CAL FIRE suggests using a standardized classification, and hence modifying the language to the following:

> **2.** ~~Observe channel characteristics such as channel width at bankfull stage, channel depth at bankfull stage, channel slope, mean entrenchment ratio, the presence of springs or seeps, and the presence of aquatic animal and plant life that require mid-summer flow. Channel substrate that includes coarse sediment, and~~ Evidence of a flow regime capable of transporting coarse sediment (coarse gravel and small cobbles 0.6 ~~one~~ inches to five (~~1~~-5) inches in diameter or greater) to a Class I watercourse during peak flows. Channel substrate that includes coarse sediment may also be a characteristic of a Class II-L watercourse.

5. Pg 4, lines 12-14: In the definition of a Class II-L watercourse, both current and proposed rule language state that the channel "***may*** be able to supply wood of a size that would function as large wood for the Class I watercourse" [emphasis added].

The proposed language specifies that the channel ***must*** be large enough to accommodate transport of wood of a size that would be functionally significant in a Class I watercourse (i.e., 6 feet in length and >12 inches in diameter). This contradicts the definition, which states that wood transport only ***may*** be possible down into a Class I watercourse (i.e., it does not have to be possible).

The proposed requirement is too restrictive and too specific to be used in rule language defining a Class II-L watercourse. In addition to large channels with high stream power, wood transport down into Class I watercourses is more likely in steep gradient (e.g., second-order ephemeral) channels located in watersheds with unstable areas subject to debris slides, flows, and torrents (May and Gresswell 2003). These characteristics do not relate well to the requirement for a channel to supply high flow volumes in the mid-summer period. Additionally, spring-fed systems in volcanic terrane (such is found in ASP portions of Shasta and Tehama Counties) tend to have stable wood accumulations, limiting downstream transport of wood, while at the same time having high summer streamflows (Grant 2012). In other words, a channel can supply a large volume of water in the summer to a Class I watercourse and have little or no chance of

promoting others (invertebrates, smaller wood, organic litter). Downstream transport of material inputs is more relevant for some functions than for others." We interpret this to mean that while large wood transport down into a Class I watercourse is a valuable input to the larger stream, it is not an appropriate requirement for defining what constitutes a Class II-L watercourse.

CAL FIRE suggests modifying the plead as follows (eliminate No. 3):

> ~~3. Sufficient channel width and depth at bankfull stage to allow transport of large wood, as defined as >12 inches in diameter and six (6) feet in length, to receiving Class I waters, during peak flows.~~

References

Bevenger, G.S. and R.M. King. A pebble count procedure for assessing watershed cumulative effects. Res. Pap. RM-RP-319. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 17 p.

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MacDonald, L.H. and D.B.R. Coe. 2007. Influence of headwater streams on downstream reaches in forested areas. Forest Science 53 (2): 148-168.

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(3) ****** an additional sediment filter on steeper slopes with high or moderate erosion hazard rating when tractor operations are proposed.

(4) Class II large watercourses (Class II-L): The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff as derived from long-term average precipitation data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA), (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Recruitment, delivery and retention of large wood in Class II- L type watercourses is also critical, as large wood increases sediment storage and decreases the rate of sediment transport to fish-bearing Class I watercourses. Other objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (c)(1) and (2) above for the Core Zone and Inner Zone are also desired objectives for Class II-L type watercourses.

(5) A primary objective for all WLPZs is to implement practices to maintain****

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

(f) Class I watercourses – ******which delimb harvested trees on pathway over which heavy equipment would travel.

(g) Class II watercourses –

The following are the minimum requirements for Class II WLPZ delineation and timber operations. Differing rules are specified for watersheds in the coastal anadromy zone, the Southern Subdistrict of the Coast Forest District, and areas outside the coastal anadromy zone. WLPZ width ranges from 50 to 100 feet slope distance, depending on side slope steepness in the WLPZ and the watercourse type.

(1) Determine the Class II Watercourse Type: Class II watercourses are composed of two types - Class II-S (standard) watercourses and Class II-L (large) watercourses. A Class II-L watercourse is defined as a Class II watercourse that: (i) can supply water and nutrients to a Class I watercourse during the month of July during an average hydrologic year; (ii) can supply coarse and fine sediment to the Class I channel; and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Identification of Class II-L watercourse types shall be based on one or more of the office methods specified under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(A) and the field methods specified under 14 CCR § 916.9 [936.9, 956.9], subsection (g)(1)(B). Class II-S watercourses are those classified as Class II watercourses pursuant to 14 CCR § 916.5 [936.5, 956.5], but do not meet the definition of a Class II-L watercourse.

(A) Office-based approaches to identify potential Class II-L watercourses:

1. Stream order: After classifying the watercourses in an area

pursuant to 14 CCR § 916.5 [936.5, 956.5], map all Class II watercourses in the area of consideration on current 1:24,000 scale U.S. Geological Survey topographic maps and determine stream order following the stream order method in 14 CCR § 895.1. Second order and third order Class II watercourses are potentially Class II-L watercourses.

2. "Blue Line" streams: Watercourses mapped with a blue or black line on current 1:24,000 scale U.S. Geological Survey topographic maps that are not Class I are inferred to be Class II-L watercourses.

3. Drainage area: A calculated drainage area known to produce mid-late summer flow based on past plan experience or local knowledge for an ownership or local region and extrapolated over the ownership or local area can indicate Class II-L watercourses.

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(B) Field-based approaches to identify potential Class II-L watercourses: Determination of Class II-L watercourses shall be verified in the field by direct channel observations and local experience using one or more of the following approaches.

1. Determine by direct observation or by local knowledge of common mid-summer conditions if office mapped Class II-L watercourses contribute flow to a Class I watercourse at least through approximately July 15th following a year with at least average precipitation.

2. Observe channel characteristics such as channel width at bankfull stage, channel depth at bankfull stage, channel slope, mean entrenchment ratio, the presence of springs or seeps, and the presence of aquatic animal and plant life that require mid-summer flow.

3. Use continuous streamflow monitoring data from headwater

watercourses to determine the watershed drainage area necessary to initiate mid-summer streamflow for a given ecoregion and extrapolate this data to other headwater basins in that ecoregion.

4. Methods that indicate subsurface flow such as: (1) observation of surface flow in upstream channels above sediment deltas or alluvial fans that have built up on flood plains or in the Class I or II watercourse channel near the confluence; and (2) audible evidence of subsurface flow located below organic and inorganic debris burying a watercourse channel.

(C) Based on (A) and (B) above, make a determination if the Class II watercourse being evaluated meets the definition of a Class II-L watercourse in 14 CCR § 916.9 [936.9, 956.9], subsection (c)(4).

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(D) Include documentation in the plan explaining how the Class II-L determination(s) were made within the plan area.

(E) All Class II-L watercourses designated above shall incorporate requirements stated in 14 CCR § 916.9 [936.9, 956.9], (g)(2) for a maximum distance of 1000 feet, or total length of Class II, which ever is less, measured from the confluence with a Class I watercourse.

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(2) Class II WLPZ widths and operational requirements: All Class II WLPZs shall be composed******

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1. Page 1, line 21: The following new language is required to add clarity on what constitutes "significant influx of water" (as used on line 15 of the plead). This language is supported by USEPA and USACE (2009), which denotes "wet channels" as those with continuous surface flow, or surface flow present but not spatially continuous. "Dry channels" are characterized as those with water absent, or no surface flow but at least one pool present. The Department believes that Class II-L watercourses must be "wet channels", as was described in the CAL FIRE and DFG (2010) Question and Answer document produced in 2010 for the Anadromous Salmonid Protection (ASP) rules. This language indicates that Class II-L watercourses can include "spatially intermittent" channels that contain short alternating wet and dry reaches. It also indicates that Class II-L watercourses can include situations where there is significant upstream surface flow above naturally occurring sediment deltas that have built up in the Class II watercourse channel located immediately above the confluence of a Class I watercourse, or where water is flowing subsurface due to anthropogenic (legacy) sediment or organic debris. The second sentence provides additional language clarifying that Class II-L watercourses are important both for providing watershed products such as cold water and nutrients to Class I fish-bearing watercourses, and for providing acceptable habitat for other organisms besides listed fish species in downstream Class I watercourses.

CAL FIRE suggests adding the following sentences:

> **(4) Class II large watercourses (Class II-L)**: The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply significant influx of water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff as derived from long-term average precipitation data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA), (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Class II-L watercourses may have either continuous surface flow, or surface

flow that is not entirely spatially continuous, but surface flow must be the dominant flow source (>75% of the channel length) within the lower 1000 feet prior to entry into the Class I watercourse. Class II-L watercourses provide watershed products that support state and federally listed anadromous salmonids in downstream Class I watercourses and they may provide habitat necessary to support the long-term viability of other coldwater dependent species. Recruitment, delivery and retention of large wood in Class II- L type watercourses is also critical, as large wood increases sediment storage and decreases the rate of sediment transport to fish-bearing Class I watercourses. Other objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (c)(1) and (2) above for the Core Zone and Inner Zone are also desired objectives for Class II-L type watercourses.

2. Pg 3, lines 13-16: Minor modifications of the plead language are suggested to provide greater clarity on how drainage area can be used as an office-based method to identify a potential Class II-L watercourse. CAL FIRE suggests the following changes:

> **3. Drainage area:** A calculated drainage area for an ownership or a comparable local area ~~region~~ known to produce mid-late summer flow based on continuous streamflow monitoring data, past plan experience, or local knowledge extrapolated over a similar geomorphic region ~~for an ownership or local region extrapolated over the ownership or local area~~ can indicate ~~a~~ potential Class II-L watercourses.

3. Pg 3, line 22 to Pg 4, line 2: Use of this language as stated would require Registered Professional Foresters (RPFs) and agency Review Team staff to be present on site during approximately July 15th to determine if a watercourse should be typed as a Class II-L. This is extremely problematic, since this is often not possible, particularly for review of a plan by agency staff. CAL FIRE suggests rewording this portion of the plead to include the words "indication of significant flow", thereby allowing field indicators to allow for review of typing provided by the RPF. Additionally, we suggest changing significant flow regime to significant flow contribution so that the language is consistent with language used elsewhere in the plead.

> **1.** Indication of significant flow contribution to a Class I watercourse, ~~Determine by direct observation or by local knowledge of common mid-summer flow conditions if office mapped Class II-L watercourses contribute flow to a Class I watercourse~~ at least through approximately July 15th following a year with at least average precipitation. The presence of springs or seeps, and aquatic animal and plant life that require perennial or near perennial flow may indicate a significant flow contribution ~~regime~~.

4. Pg 4, line 6-8: Class II channels that provide watershed products that support state and federally listed anadromous salmonids in downstream Class I watercourses or that provide habitat necessary to support the long-term viability of other coldwater dependent species do not necessarily have coarse gravel substrates in all situations. CAL FIRE does not believe the language used for typing Class II watercourses should be limited to coarse gravel bed channels. Streampower during peak winter storm events, should however, be sufficient to move coarse gravel down to a Class I watercourse. Additionally, the standard Wentworth classification system for stream particle sizes (Wentworth 1922; used in Bevenger and King 1995) includes the following categories: coarse gravel (0.63 in to 1.26 in [16 to 32 mm]), very coarse gravels (1.25 in to 2.5 in [32 to 64 mm]), and small cobbles (2.5 in to 5 in [64 to 128 mm]). CAL FIRE suggests using a standardized classification, and hence modifying the language to the following:

> **2.** ~~Observe channel characteristics such as channel width at bankfull stage, channel depth at bankfull stage, channel slope, mean entrenchment ratio, the presence of springs or seeps, and the presence of aquatic animal and plant life that require mid-summer flow. Channel substrate that includes coarse sediment, and~~ Evidence of a flow regime capable of transporting coarse sediment (coarse gravel and small cobbles 0.6 ~~one~~ inches to five (~~1~~ 5) inches in diameter or greater) to a Class I watercourse during peak flows. Channel substrate that includes coarse sediment may also be a characteristic of a Class II-L watercourse.

5. Pg 4, lines 12-14: In the definition of a Class II-L watercourse, both current and proposed rule language state that the channel "***may*** be able to supply wood of a size that would function as large wood for the Class I watercourse" [emphasis added].

The proposed language specifies that the channel ***must*** be large enough to accommodate transport of wood of a size that would be functionally significant in a Class I watercourse (i.e., 6 feet in length and >12 inches in diameter). This contradicts the definition, which states that wood transport only ***may*** be possible down into a Class I watercourse (i.e., it does not have to be possible).

The proposed requirement is too restrictive and too specific to be used in rule language defining a Class II-L watercourse. In addition to large channels with high stream power, wood transport down into Class I watercourses is more likely in steep gradient (e.g., second-order ephemeral) channels located in watersheds with unstable areas subject to debris slides, flows, and torrents (May and Gresswell 2003). These characteristics do not relate well to the requirement for a channel to supply high flow volumes in the mid-summer period. Additionally, spring-fed systems in volcanic terrane (such is found in ASP portions of Shasta and Tehama Counties) tend to have stable wood accumulations, limiting downstream transport of wood, while at the same time having high summer streamflows (Grant 2012). In other words, a channel can supply a large volume of water in the summer to a Class I watercourse and have little or no chance of

supplying large woody debris (or vice versa). The two do not "go hand in hand" in many cases.

MacDonald and Coe (2007) discuss transport of watershed products downstream in headwater channels. They report that headwater sources of water, fine sediment, and fine particulate organic matter are more likely to be delivered to downstream reaches than coarse sediment, woody debris, nutrients, or an increase in water temperature. They state that the relative importance of headwater streams as a source of coarse sediment, woody debris, nutrients, or an increase in water temperature is highly variable.

In defining a Class II-L watercourse in 2009, the Departments (CAL FIRE and DFG) and the Board agreed that the key factors for defining the large Class II were significant flow in the mid-summer period, transport of coarse and fine sediment, and nutrients. Wood was explicitly made optional. The Department believes that this is still appropriate in the revised Class II-L rule package under consideration by the Board.

As was discussed in 2009, the Class II-L itself is <u>important part of the river continuum concept</u>, where a stream is an open, connected ecosystem that has constant interaction with its components from the source to mouth (Vannote et al. 1980). With this perspective, a Class II-L watercourse is significant because it can supply functions that are important to the entire system, and that it is not just important for it to supply products that can be directly transported down into a Class I watercourse.

CAL FIRE believes that greater emphasis should be placed on those Class II watercourses that provide watershed products to Class I watercourses <u>or can significantly influence</u> Class I watercourses for anadromous salmonids recovery. This is made clear in the existing definition, where it states that recruitment, delivery, and retention of large wood in Class II-L type watercourses is also critical, as large wood increases sediment storage and decreases the rate of sediment transport to fish-bearing Class I watercourses. As was considered in 2009, large or moderate sized woody debris does not have to transported down to a Class I watercourse to be a significant positive influence to the overall stream system.

Coe (2009) provides greater detail on this issue, stating that "[l]arge woody debris plays an important role in modifying channel hydraulics, increasing sediment storage, and decreasing the rate of sediment transport in headwater channels. A reduction of LWD 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 fish-bearing streams. By providing some element of LWD recruitment to these channels, we can increase sediment storage potential, and decrease the likelihood of sediment delivery to fish-bearing streams."

Sound Watershed Consulting (2008) states that "[l]ongitudinally, the buffer length should be sufficient to limit certain key inputs (heat, sediment, water), while

promoting others (invertebrates, smaller wood, organic litter). Downstream transport of material inputs is more relevant for some functions than for others." We interpret this to mean that while large wood transport down into a Class I watercourse is a valuable input to the larger stream, it is not an appropriate requirement for defining what constitutes a Class II-L watercourse.

CAL FIRE suggests modifying the plead as follows (eliminate No. 3):

> ~~3. Sufficient channel width and depth at bankfull stage to allow transport of large wood, as defined as >12 inches in diameter and six (6) feet in length, to receiving Class I waters, during peak flows.~~

References

Bevenger, G.S. and R.M. King. A pebble count procedure for assessing watershed cumulative effects. Res. Pap. RM-RP-319. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 17 p.

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Campbell
TIMBERLAND MANAGEMENT LLC

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BOARD OF FORESTRY AND FIRE PROTECTION

October 22, 2012

California State Board of Forestry and Fire Protection
Mr. Stan Dixon, Chairman
P.O. Box 944246
Sacramento, CA 94244-2460

Re: Public Comment - Class II-L Identification Methods Amendments, 2012 for Public Hearing on November 7, 2012

Dear Chairman Dixon,

Campbell Timberland Management (CTM) manages approximately 115,000 acres for Hawthorne Timber Company (HTC) in coastal Mendocino County. CTM submits the following comments on behalf of HTC. Hawthorne Timber Company is in support of the proposed CA Forest Practice Rule (FPR) modifications contained in the 45-day rule making notice for Class II-L Identification Methods Amendments, 2012. During and following the adoption of the Anadromous Salmonids Protection, 2009 rules HTC has been very concerned with the economic impacts imposed by this rulemaking and the lack of clarity surrounding certain FPR sections. Adverse economic impacts are associated with the additional core zone width and additional overstory canopy and large tree retention required for CII-L watercourses. This level of protection is identical to that provided within 100 feet of Class I watercourses. It is extremely important that only larger Class II watercourses that provide multiple valuable watershed products be mandated to provide this enhanced level of protection. In order to be on record of objecting to the CAL FIRE implementation guidance on this issue since 2010, CTM has inserted the following paragraph regarding Class II watercourses into Section III of the THP: *"In preparing and submitting this plan for CAL FIRE's review, the plan submitter does not waive or release any claim that some or all of the protections for Class II-L watercourses imposed by CAL FIRE are not required under the Anadromous Salmonid Protection Rules. More particularly, the preparation and submission of the plan, including the depiction of any Class II-L watercourses, is not an admission that CAL FIRE can impose Class II-L protection for a 1,000-foot segment of the watercourse, regardless if the actual length of that watercourse type is less than 1000 feet. The preparation and submission of these documents is not an acknowledgement or admission of the correctness of CAL FIRE's interpretation and/or application of the Anadromous Salmonid Protection Rules and the plan submitter reserves the right to challenge such interpretation and/or application, or take advantage of another plan submitter's challenge, through appropriate review."*

On November 7, 2011 CTM submitted a letter to the Board of Forestry (BOF) Policy Committee for its hearing on November 8, 2011 on Interpretation and Potential Solutions to Existing Forest Practice Rules; specifically regarding FPR 14 CCR 916.9 [936.9, 956.9] (c)(4) and (g)(1). We have attached a copy of that letter for your review, as it represents some of the rationale and need for revisions to CII-L watercourse identification rules. That letter addressed three of our concerns:

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flow, significance of flow and the 1000 foot level of standard protection, or whichever is less. Since the ASP rules were adopted, CTM personnel have conducted hundreds of CII watercourse segment evaluations during the latter half of July in 2010 and 2011(which were average hydrologic years) in order to properly type CII watercourse segments per the rules. We collected flow and temperature metrics both on the CII tributary and receiving Class I watercourse in addition to watercourse channel metrics and other observations on the tributary Class II (see attached CTM data collection sheet and flow regime examples). What these evaluations have shown is that CII watercourses vary in all the above listed metrics that are used to aid in CII typing. These three major concerns also represented much of the discussion before the Forest Practice Committee on this issue this year. Both agencies and CTM submitted multiple revised proposals to clarify our positions and facilitate understanding and hopefully develop consensus. The plead language in the 45-day notice represents a balance of consideration on these major issues.

Flow Related Issues

The critical issues for CII-L identification are found within two FPR rule sections 14 CCR 916.9 (c)(4) and (g)(1). We believe there is general agreement, supported by the scientific literature, that some Class II tributaries are of particular value to their receiving Class I watercourses by the distinctive nature of the watershed products they provide (e.g. water/nutrients, sediment and wood). The proposed 45-day noticed rule changes address these watershed products by providing additional descriptive metrics that require some modest level of functionality of these watershed products to the receiving Class I watercourse. It is clear that existing subsections 14 CCR 916.9(c)(4)(i) and (g)(1) specifies summer stream flow (water) as one of the important values and functions of a type CII-L watercourse. Specifying the month of July was apparently included to provide a defined assessment period for observation of flow at the time of year where elevated water temperature could adversely impact the CI receiving waters. While our November 7, 2011 letter proposed to clarify that the consideration of water be limited to surface flow, the July period specified indicates that surface flow is likely the only flow type that can be both observed and measured if need be. So in terms of practicality it appears unnecessary to specify clarifying language for what can reasonably be determined to mean surface flow by the overall construction of the value and function being provided. This is not to mean that subsurface flow cannot be considered in certain instances but that this would generally receive a lower level of importance or consideration.

We also originally proposed to clarify that some tributary flow regimes are so minor and should be dismissed as not meeting the flow criteria. In many cases the flow in CII watercourses are too low to be accurately measured using streamflow meters or other techniques (e.g. the "float' method). Therefore we suggested adding the modifier "significant." While this term may appear to be too subjective to be constructive, we recommended the field based approach under (g)(1)(B) be modified to require either use of Brown's mixing formula or requiring the RPF to document the minor flow regime by use of photographs or other appropriate documentation to inform the significant/non-significant determination. The 45-noticed language under 14 CCR 916.9(g)(1)(D) also requires documentation of the characteristics observed pursuant to (g)(1)(B). The noticed plead also uses slightly different terms i.e., "significant influx" and "significant flow contribution." In our opinion, this language is designed to allow watercourses with larger and wider channels which are dry in the summer to meet the flow criteria (i.e. subsurface flow could be utilized if

deemed significant). In this example, if the production of coarse gravel and ability to provide small pieces of "large wood", as specified, are observed or their contribution logically deduced, such evidence would support the determination that the Class II tributary was indeed a CII-L based on meeting all three of the observable characteristics specified under 14 CCR 916.9(g)(1)(B)(1-3). On the other hand, smaller watercourses with narrow channels and minor flow would not meet the flow criteria and thus would not meet all three observable required characteristics.

Field Verification of the Class II-L Determination - Requirement for the Presence of All Three Observable Characteristics

The existing language under 14 CCR 916.9(g)(1)(B) currently only requires one or more of three characteristics be observed or inferred by local experience. Unfortunately these three characteristics are all flow related and do not provide descriptive information related to the other values and functions of CII-L watercourse segments to produce watershed products of coarse sediment and wood. The noticed plead requires direct observation of the channel conditions and related parameters that produce watershed products at a modest level that would provide ecological value to fish and other aquatic species residing in or using the CI receiving waters (Class I watercourse). These characteristics and metrics are consistent with overall objectives contained in both 916.9 (c)(4) and (g)(1) and inform more specifically, observational metrics for use in field-based verification. The first paragraph to subsection 14 CCR 916.9(g)(1)(B) also clearly specifies the need that direct observations of the CII tributary channel morphology (e.g. width and depth) gradient, channel substrate and flow regime be supplemented with local experience or site-specific documentation. The three required observable characteristics for field verification include: 1. Significant flow contribution (discussed above), 2. Transport of coarse sediment (gravel and small cobble 1-5 inches in diameter or greater and, 3. Sufficient channel width and depth at bankfull stage to transport large wood defined as greater than 12 inch diameter and 6 feet in length. The metrics specified for coarse sediment and for large wood are metrics contained and utilized in the Department of Fish and Game Stream Habitat Restoration Manual (4th Edition, July 2010). Gravel and smaller cobles are quite beneficial to salmonid spawning habitat (see attached page III-4 and data forms from the Restoration Manual). For wood, the size specified is the smallest size of large woody debris material counted as part of a Large Woody Debris (LWD) Stream and Riparian Inventory (see attached pages III-43 and III-49 also from the Restoration Manual). While generally not functional alone as a "key piece", smaller pieces of wood can combine with other larger and more structural stable pieces of wood to provide beneficial salmonid habitat in the receiving Class I watercourse.

1000 feet of Protection, Whichever is Less

While our original proposal focused on clarifying the flow issue, additional modifications were also proposed clarifying the field evaluation and extent of enhanced protection (i.e. how the maximum 1000 foot length would be determined). It has been our position that when the BOF adopted the ASP rules in 2009 it did so by tying a site-specific field approach to a maximum of 1000 feet of enhanced protection (as opposed to an optional proposal of 650 feet). In our view, the field based approach would be used to indicate the actual extent of CII-L protection. If direct observations indicated that the channel conditions within the CII tributary changed (e.g. diminished flow) then the upper extent of CII-L protection could be less than 1000 feet (e.g. 600

feet from the confluence with the CI). This interpretation was contingent on the required presence of only one direct channel observation per 14 CCR 916.9(g)(1)(B); all of which are mid-summer flow related characteristics. Thus, the initial field-based "call" was whether the tributary CII channel possessed one of the flow-related characteristics at the CII confluence with the receiving CI, if so the channel was deemed a CII-L. The next step was then to continue to evaluate the channel throughout the next 1000 feet or until the channel no longer maintained the characteristics of a CII-L based on direct field observations. The RPF would then provide documentation in the plan regarding these determinations per subsections 14 CCR 916.9(C)-(E). Our data collection form was designed to capture important channel characteristics so that this applicable information could be included as documentation in the plan. This view is quite different from what is contained in the CAL FIRE implementation guidance document: once determined to be CII-L, the CII would automatically receive 1000 feet of enhanced protection regardless of flow or channel morphology changes within the CII unless the watercourse changed to a CIII. As discussed above, the proposed plead takes a different approach by requiring the presence of all three channel/flow characteristics and if present, then commensurately requiring a standard 1000 feet of enhanced protection unless the CII tributary being evaluated changed to a CIII watercourse. This is clarified by proposed changes in the plead under subsection 14 CCR 916.9(g)(1)(E). Similar clarifying language in subsection 14 CCR 916.9(g)(1)(D) is proposed to provide the RPF additional guidance on the types of documentation that can be provided to aid in supporting the RPF's CII-L determination.

In summary, we view the proposed changes as an improvement to CII-L identification and associated protection, on balance, as it requires increased levels of protection for CII tributaries that truly provide watershed products of value to the receiving CI watercourse. These changes are supported by ecological value placed on watershed products from larger tributary (i.e. CII watercourses) to receiving CI waters. Therefore, we support the proposed language contained in the 45-day notice plead.

Thank you for the opportunity to comment on the proposed rule package CII-L Identification Methods Amendments, 2012.

Sincerely

Peter F. Ribar

Peter F. Ribar
Resource Manager

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Campbell
TIMBERLAND MANAGEMENT LLC

November 7, 2011

California State Board of Forestry and Fire Protection
Mr. Stan Dixon, Chairman
P. O. Box 944246
Sacramento, CA 94244-2460

Re: Policy Committee Hearing on Interpretation and Potential Solutions to Existing Forest Practice Rules 14 CCR 916.9 [936.9, 956.9](c)(4) and (g)(1); Policy Committee Agenda Item 1, November 8, 2011.

Dear Chairman Dixon,

Campbell Timberland Management (CTM) representing Hawthorne Timber Company submits the following comment and proposed FPR modifications.

CTM actively participated in the discussion and final adoption of the Anadromous Salmonid Protection Rules (ASP) throughout 2008 and 2009. We were particularly concerned about how Class II-L watercourses would be identified and the extent of associated protection measures. We also actively participated at workshops held by CAL FIRE and DFG "rolling out" the new rules and provided a number of questions regarding interpretation of these rules; particularly as they relate to CII-L identification and protection. The CAL FIRE/DFG document titled "Anadromous Salmoid Protection Rules: Interpretive Questions and Answers for RPFs and Landowners" has provided rule implementation and enforcement guidance that, in our opinion veers significantly away from what was intended by the Board. The proposal contained herein is our approach to ensure that truly "Large" CII-L watercourses are correctly identified and that protection measures applicable to these watercourses, that are of particular value and function to receiving Class I waters, can be applied in an appropriate and consistent manner.

Issue to be addressed: Class II-L watercourse identification criteria and watercourse protection length.

Background: During 2008 and 2009 significant dialog occurred between Agencies, Stakeholders and the Board regarding protection standards for Anadromous Salmonid Protection. An important aspect of the discussion revolved around protection for Class II watercourses. It was generally agreed by all that certain Class II watercourses warranted additional protection due to their ability to produce watershed products (most notably heat) that could significantly influence the downstream receiving Class I. The proposed rule package incorporated criteria to be used to define Class II-L (Large) and the level of protection. The Board in 2009 adopted a final rule that incorporates both an office approach and field approach to be used to identify potential CII-L watercourses.

Following BOF rule adoption CAL FIRE held workshops to develop a list of questions from RPFs and landowners regarding interpretation of the ASP rules. Following these meetings CAL FIRE/DFG summarized these issues in the document titled: "Anadromous Salmonid Protection Rules: Interpretive Questions and Answers for RPFs and Landowners"; several renditions of the document have been developed the latest dated April 2, 2010. As a result of the CAL

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FIRE/DFG document, RPFs have been operating with written interpretation of how the rules should be implemented and enforced. Throughout 2010 and 2011 significant discussion has occurred during preharvest inspections in the field regarding the "correct" identification and protection of Class II-L watercourses. The result has been many more Class II watercourses (not meeting CII-L criteria) have been recommended to be typed as CII-L with automatic 1000 foot protection lengths. In our view this does not comport with the current rule language.

These CII-L discussions in the field have largely revolved around three general topics:

1. Flow,
2. Significance of flow and
3. The 1000 foot level of standard protection, or which ever is less (The Board has discussed this issue informally in the past)

Proposal: The proposal is to modify the FPRs to address these three issues. Existing FPR language is in Times New Roman font with the rule citation in Bold. Proposed language for deletion is depicted in strikeout. Proposed additions are shown in red font and underline with yellow highlight. CTM comment is indented and provided in Arial Font.

916.9 (c)(4) Class II large watercourses (Class II-L): The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply significant surface water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff as derived from long-term average precipitation data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA), (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Recruitment, delivery and retention of large wood in Class II- L type watercourses is also critical, as large wood increases sediment storage and decreases the rate of sediment transport to fish-bearing Class I watercourses. Other objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (c)(1) and (2) above for the Core Zone and Inner Zone are also desired objectives for Class II-L type watercourses.

916.9 (g)(1) Determine the Class II Watercourse Type: Class II watercourses are composed of two types - Class II-S (standard) watercourses and Class II-L (large) watercourses. A Class II-L watercourse is defined as a Class II watercourse that: (i) can supply significant surface water and nutrients to a Class I watercourse during the month of July during an average hydrologic year; (ii) can supply coarse and fine sediment to the Class I channel; and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Identification of Class II-L watercourse types shall be based on one or more of the office methods specified under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(A) and the field methods specified under 14 CCR § 916.9 [936.9, 956.9], subsection (g)(1)(B). Class II-S watercourses are those classified as Class II watercourses pursuant to 14 CCR § 916.5 [936.5, 956.5], but do not meet the definition of a Class II-L watercourse.

The proposed language changes associated with 916.9(c)(4) and 916.9(g)(1) clarify the principal criteria defining a Class II-L. Presently the DFG claim (during PHI inspections) is that *any* flow type at all (including undetectable subsurface flow), at any location within 1000' of a Class I and with any flow regime is sufficient to identify a watercourse as a Class II-L. The addition of the word "surface" clarifies that it takes surface flow to define a potential Class II-L watercourse. This change acknowledges that subsurface groundwater functions as a cooling mechanism. The modifier significant has been added to clarify that a determination of significance must be made by the RPF or supervised designee. This determination can be ocular (e.g. a high discharge of observed flow) or through data collection. Very minimal mid to late summer tributary

streamflow may not be ecologically significant when the water temperature in the receiving Class I is below known requirements for the listed salmonids present.

Oregon State University Professor George W. Brown's "mixing ratio" from the publication Forestry and Water Quality (1980) is proposed to be used to document significant streamflow contribution as proposed below in 916.9(g)(1)(B). Use of this approach was included in the joint CAL FIRE/DFG rule plead provided to the Board. Several temperature metrics meaningful to anadromous salmonids are specified to provide RPFs and landowners flexibility in obtaining appropriate data. The proposal also acknowledges that streamflow or discharge is extremely difficult to measure accurately in very small streams with very low or minimal flow. Flow meters only work when enough flow is available to immerse the measuring device. The "float method" for calculating water velocity is often problematic due to channel obstructions such as larger cobbles, channel substrate changes, woody debris accumulations etc. Over the last two summers (from July 16 to July 31 in 2010 and 2011; hydrologic years of above average precipitation) CTM staff has conducted over 300 CII-L watercourse field investigations using standardized protocols and data collection forms. As a result of these watercourse evaluations it is quite clear when a watercourse segment should be afforded CII-L protection, if a preponderance of evidence approach were to be utilized. The changes we propose serve to buttress the FPRs reliance on RPF responsibility for high quality evaluation and documentation.

Note: this approach would continue to provide enhanced CII-L protection to "small-very low flow" watercourses with contributing surface flow to Class I watercourses that are currently exhibiting elevated mid-summer water temperatures. The following CII watercourses with significant flow regimes would also be afforded CII-L protection: those immediately upstream of a Class I terminated by a natural obstruction (e.g. steep bedrock slick or waterfall") where flow regimes are similar and to many "wider" USGS "Blueline" streams with perennial flow. Smaller Class II watercourses with low (non-significant) contributing surface flow regimes would be afforded CII-S protection.

916.9 (g) (1)(B) Field-based approaches to identify potential Class II-L: Determination of Class II-L watercourses shall be verified in the field by direct channel observations, ~~and~~ local experience or specified documentation using one or more of the following approaches.

1. ~~Determine by~~ Direct observation or by local knowledge of ~~common mid-summer~~ significant surface flow contribution ~~conditions if office mapped Class II-L watercourses contribute flow~~ to a Class I watercourse at least through approximately July 15th following a year with at least average precipitation. Significant tributary flow contribution may be documented by collecting tributary and Class I mid-summer (after July 15th) streamflow and water temperature data and inputing this data into Brown's (1980) "mixing ratio" equation from page 56 of the publication. Specifically, the adjusted water temperature in the receiving Class I watercourse shall not exceed 62.1 degrees Fahrenheit (16.7° Celsius) presented as the Maximum Weekly Average Temperature (MWAT) or 64.4 degrees Fahrenheit (16.9° Celsius) presented as the Maximum Weekly Maximum Temperature (MWMT) or an instantaneous reading of 63.7 degrees Fahrenheit (17.6° Celsius) when measured after 11:00am. The inability to accurately measure stream flow velocity by either streamflow meters or using the "float method", due to the paucity of surface flow, may also be used to substantiate a non-significant tributary flow contribution to the receiving Class I watercourse. In such instances, the RPF shall provide photographs and other appropriate documentation depicting the Class I and Class II flow regimes.

2. Direct ~~O~~observeation of channel characteristics such as channel width at bankfull stage, channel depth at bankfull stage, channel slope, mean entrenchment ratio, the presence of springs or seeps, and the presence of aquatic animal and plant life that require mid-summer flow.

3. Use of continuous streamflow monitoring data from headwater watercourses to determine the watershed drainage area necessary to initiate mid-summer streamflow for a given ecoregion and extrapolateing this data to other headwater basins in that ecoregion.

(C) Based on (A) and (B) above, make a determination if the portion of the Class II watercourse being evaluated meets the definition of a Class II-L watercourse in 14 CCR § 916.9 [936.9, 956.9], subsection (c)(4).

(D) Include documentation in the plan explaining how the Class II-L determination(s) were made within the plan area.

916.9(g)(1)(E) All Class II-L watercourses designated above shall incorporate requirements stated in 14 CCR § 916.9 [936.9, 956.9], (g)(2) for a maximum distance of 1000 feet, or total length of Class II watercourse segments which meet the definition of a Class II-L, which ever is less, measured from the confluence with a Class I watercourse.

For 916.9(g)(1)(E) the objective is to have Class II-L protection measures applied to only those segments of the Class II watercourse which actually contribute surface water flow contribution after July 15th following a year of average precipitation. The current CAL FIRE interpretation seems to be that once a Class II is determined to be a Class II-L due to flow at the confluence with the Class I then the watercourse automatically receives 1000 feet of protection not just the portion where water is actually flowing (i.e. less than or equal to 1000 feet of protection). Our goal is to apply Class II-L protection only to the area where water is flowing which may be less than the full 1000 feet protection under the existing rule interpretation. This approach provides additional canopy protection for water temperature moderation (Class II-L WLPZ have higher canopy retention levels which would maintain lower temperatures) which is appropriate for these connected watercourse segments and extraneous for channel segments with no connected flow to a Class I.

Thank you for the opportunity to comment on existing FPRs and to provide potential solutions to improve rule compliance.

Sincerely,

Peter F. Ribar

Peter F. Ribar
Resource Manager

Class II Large or Standard Evaluation Form

Campbell Timberland Management - PROPRIETARY FORM

THP Name	
Harvest Unit	
CII ID Number	
Tributary to (Closest Class 1)	
Photo(s) Circle Y or N	Y N

Date	
Time	
Surveyor 1	
Surveyor 2	
Weather	

CII Flow Characteristics at Confl. (Circle description below)		
No Flow / Flow / Low Flow / Intermitt Flow / Isolated Pools		
All units in Feet and tenths of Feet		
For Low Flow: CFS Estimate	Avg Wet - Depth	
	Avg Wet - Width	
	Velocity (F/S)	

C I Flow Characteristics (Circle description below)		
No Flow / Flow / Low Flow / Intermitt Flow / Isolated Pools		
All units in Feet and tenths of Feet		
CFS Estimate	Avg Wet - Depth	
	Avg Wet - Width	
	Velocity (F/S)	

If No Flow at Conflu.:	Distance of wetted channel from confluence	
If Flow at Conflu.:	Distance of dry channel from confluence	

Temperature - °C			
CII	Distance from confluence	C I - 50' Below	C I - 50' Above

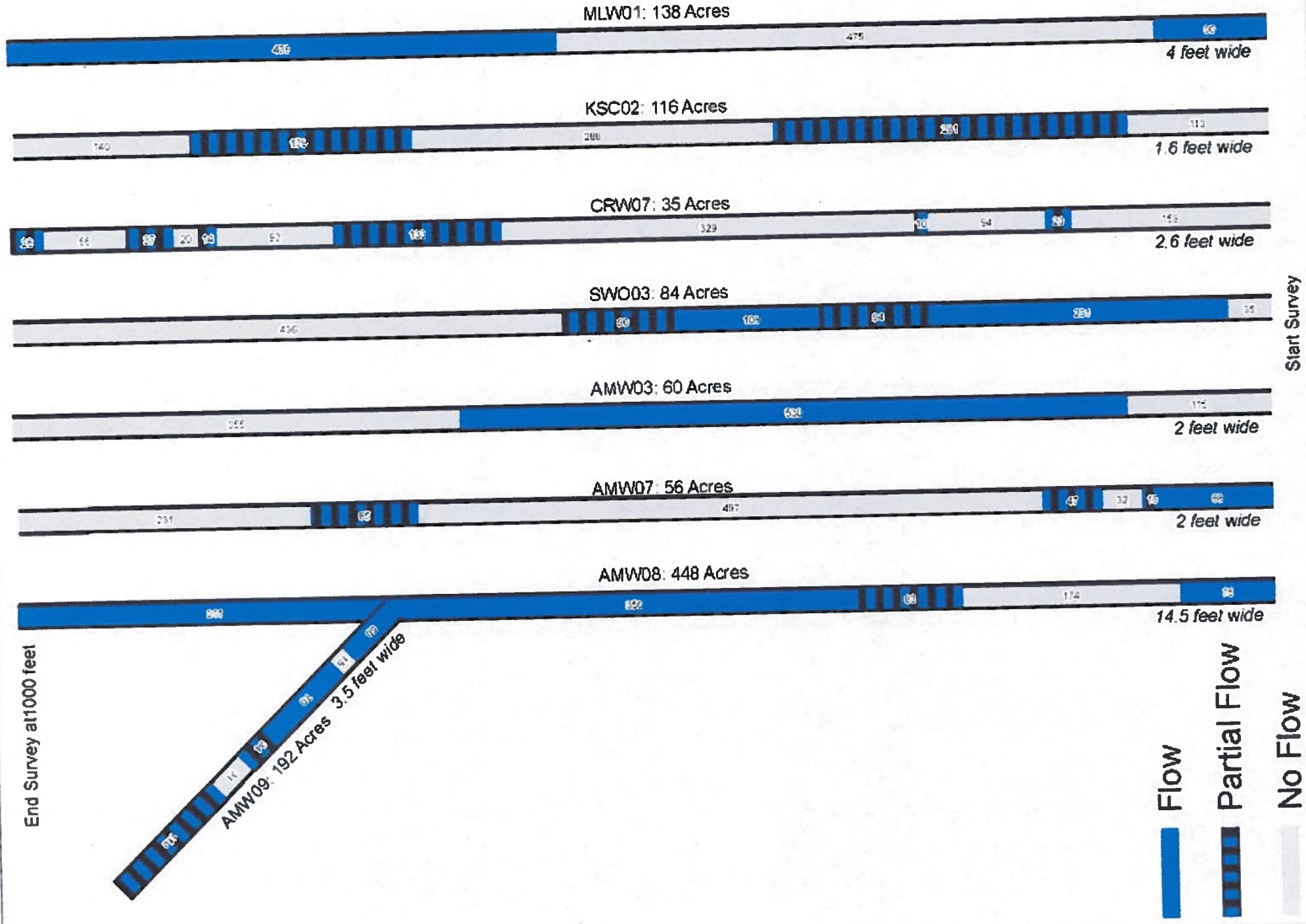
Rationale for CII-S Determination	Reason for CII-L Termination	Reason for CII-L receiving CII-S Protection	CII-L Protection Length
No Flow / Channel Characteristics / NA	Becomes 1st Ord CII / CIII / NA	Low Flow/Intermitt Flow/Isolated Pools/NA	

Circle as appropriate ↑

Channel Measurements or Observations										
Dist. from Class I Confluence										
Water Flow Code										
Bankfull Width										
Bankfull Depth										
Width at 2X Bankfull										
Channel Gradient %										
Spring / Seep										
Aquatic Plant or Animal										
Debris Jam/LWD										
Landslide										
Unstable Banks										
Photograph Number										
Tributary Enters R/L Bank										
Road/Skid Crossing (T/S)										
Other										
Codes - Flow, N - No Flow, LF - Low Flow, I - Intermittent Flow, P - Isolated Pools										

Comments:

CONFIDENTIAL


MLW01: 138 Acres
4 feet wide
KSC02: 116 Acres
1.6 feet wide
CRW07: 35 Acres
2.6 feet wide
SWO03: 84 Acres
AMW03: 60 Acres
2 feet wide
AMW07: 56 Acres
2 feet wide
AMW08: 448 Acres
14.5 feet wide
AMW09: 192 Acres
3.5 feet wide
Start Survey
End Survey at1000 feet
Flow
Partial Flow
No Flow

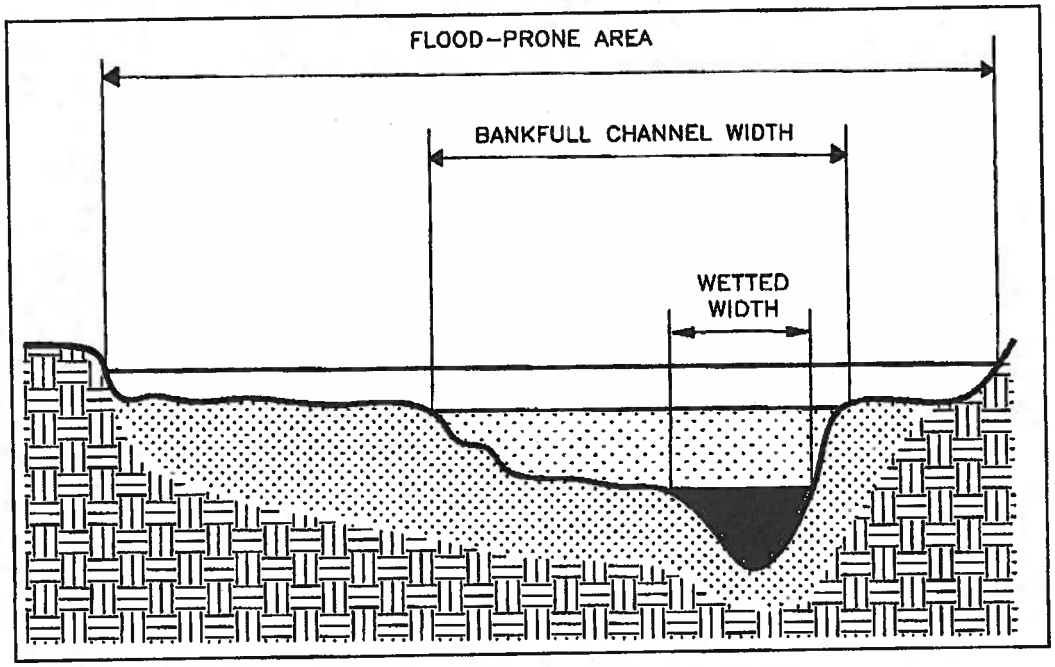


Figure III-1. Channel cross section.

Width/depth ratio: The ratio of the bankfull width (W_{bkf}) to the bankfull mean depth (d_{bkf}). The categories are:

1) Low ($W_{bkf}/d_{bkf} < 12$)
2) Moderate to High (W_{bkf}/d_{bkf} 12 - 40)
3) Very High ($W_{bkf}/d_{bkf} > 40$)

Water surface slope/gradient: The slope of the water surface is measured over a distance of at least 20 bankfull channel widths at velocity crossovers.

Dominant substrate: The most common particle found on the bed of the stream measured at the velocity crossover. The particles are classified by their maximum diameter.

PARTICLE SIZE:	INCHES
Boulder	> 10"
Cobble	2.5-10"
Gravel	0.08-2.5"
Sand	< 0.08"
Silt/clay	N/A
Bedrock	N/A

STREAM CHANNEL TYPE WORK SHEET

Form # ____ **of** ____

Channel Type _____ **Channel Change Location (Habitat Unit#)** _____
Cross-Section Location (Habitat Unit#) _____ **Date** _____/_____/_____
Stream _____
T____**R**____**S**____ **Surveyors** _____
Quad _____ **Lat** ____ ____ ____ **Long** ____ ____ ____

Single Thread Channel _____ (Y/N) **Multiple Channel** _____ (Y/N)

Bankfull Width (W_{bkf}) = _____ (ft.)

Transect Recording Box

Dist.																				
Depth																				
Sub.																				

Sum of Depths _____

Dominant Substrate Determination:

	Substrate:	Number
1.	Bedrock	= ____
2.	Boulder (>10")	= ____
3.	Cobble (2.5 - 10")	= ____
4.	Gravel (0.08 - 2.5")	= ____
5.	Sand (<0.08)	= ____
6.	Silt / Clay	= ____

(Circle Most Frequent Occurrence)

Entrenchment Determination:

Step 1: Maximum Bankfull Depth _____ x 2 = _____ (W_{FP} Elev.)

Step 2: Determine Flood-Prone Width at WFP Elevation = _____ (W_{FP})

Step 3: Flood-Prone Width (W_{FP}) / Bankfull Width (W_{bkf}) = Entrenchment
W_{FP} _____ (ft.) / _____ (ft.) = _____ **(Entrenchment)**

Width/Depth Determination:

Step 1: Sum of Depths _____ / No. Depths _____ = Mean Bankfull Depth (d_{bkf}) ____

Step 2: Bankfull Width (W_{bkf}) / Mean Bankfull Depth (d_{bkf})=Width/Depth Ratio
W_{bkf} _____ (ft.) / d_{bkf} _____ (ft.) = _____ **(W/D Ratio)**

Sinuosity Determination (Only For A or G Types):

Stream Length _____ / Valley Length _____ = Sinuosity _____

Water surface slope Determination:

Downstream Level - Upstream Level / Distance (D) = Energy Gradient
DSL _____ (ft.) - USL _____ (ft.) / (D) _____ (ft.) = _____

HABITAT INVENTORY DATA FORM

								Form #	of	
Date / /	Stream Name							T	R	S
Surveyors					Lat.			Lon.		
Quad.			Channel Type		Reach		BFW		@HU#	
Time	H_2O F°	Air F°		Flow	Pg Length			Totl. Length		
Habitat Unit Number										
Habitat Unit Type										
Side Channel Type										
Mean Length										
Mean Width										
Mean Depth										
Maximum Depth										
Depth Pool Tail Crest										
Pool Tail Embeddedness										
Pool Tail Substrate										
LWD Count D>1&L6to20										
LWD Count D>1&L>20										
Shelter Rating: Shelter Value										
Shelter Rating: % Unit Covered										
Shelter Rating: % undercut bank										
Shelter Rating: % swd (d<12")										
Shelter Rating: % lwd (d>12")										
Shelter Rating: % root mass										
Shelter Rating: % terr. vegetation										
Shelter Rating: % aqua. vegetation										
Shelter Rating: % bubble curtain										
Shelter Rating: % boulders (d>10")										
Shelter Rating: % bedrock ledges										
Substrate Composition (2 Most Dominant): A) Silt/Clay										
Substrate Composition (2 Most Dominant): B) Sand										
Substrate Composition (2 Most Dominant): C) Gravel (0.08-2.5")										
Substrate Composition (2 Most Dominant): D) Sm Cobble (2.5-5")										
Substrate Composition (2 Most Dominant): E) Lg Cobble(5-10")										
Substrate Composition (2 Most Dominant): F) Boulder (>10")										
Substrate Composition (2 Most Dominant): G) Bedrock										
Percent Exposed Substrate										
PERCENT TOTAL CANOPY										
% Hardwood Trees										
% Coniferous Trees										
Bank Composition & Vegetation: Rt Bk Composition										
Bank Composition & Vegetation: Rt Bk Dominant Veg										
Bank Composition & Vegetation: % Rt Bk Vegetated										
Bank Composition & Vegetation: Lft Bk Composition										
Bank Composition & Vegetation: Lft Bk Dominant Veg										
Bank Composition & Vegetation: % Lft Bk Vegetated										

Bank Composition Types	**omments:** structures Channel Diversions Tribs Erosion Biota Passage Access GPS Othe
1) Bedrock	
2) Boulder	
3) Cobble/Gravel	
4) Silt/Clay/Sand	
Vegetation Types	
5) Grass	
6) Brush	
7) Deciduous Trees	
8) Evergreen Trees	
9) No Vegetation	

Instream Shelter

Instream shelter within each habitat unit can be rated according to a standard system. This rating system is a field procedure for habitat inventories which utilizes objective field measurements. It is intended to rate, for each habitat unit, complexity of shelter that serves as instream habitat or that creates areas of diverse velocities which are focal points for salmonids. In this rating system, instream shelter is composed of those elements within a stream channel that provide protection from predation for salmonids, areas of reduced water velocities in which fish can rest and conserve energy, and separation between territorial units to reduce density related competition. This rating does not consider factors related to changes in discharge, such as water depth.

Instream Shelter Complexity. A value rating can be assigned to instream shelter complexity. This rating is a relative measure of the quantity and composition of the instream shelter.

Value	Instream Shelter Complexity Value Examples:
0	• No shelter.
1	• One to five boulders. • Bare undercut bank or bedrock ledge. • Single piece of large wood (>12" diameter and 6' long) defined as large woody debris (LWD).
2	• One or two pieces of LWD associated with any amount of small wood (<12" diameter) defined as small woody debris (SWD). • Six or more boulders per 50 feet. • Stable undercut bank with root mass, and less than 12" undercut. • A single root wad lacking complexity. • Branches in or near the water. • Limited submersed vegetative fish cover. • Bubble curtain.
3	Combinations of (must have at least two cover types): • LWD/boulders/root wads. • Three or more pieces of LWD combined with SWD. • Three or more boulders combined with LWD/SWD. • Bubble curtain combined with LWD or boulders. • Stable undercut bank with greater than 12" undercut, associated with root mass or LWD. • Extensive submersed vegetative fish cover.

Instream Shelter Percent Covered. Instream shelter percent covered is a measure of the area of a habitat unit occupied by instream shelter. The area is estimated from an overhead view.

LARGE WOODY DEBRIS (LWD) STREAM AND RIPARIAN INVENTORY

Background

The importance of large woody debris (LWD) in the development of a stream's morphology and biological productivity has been well documented over the last twenty years. It strongly influences stream habitat characteristics and biotic composition. Bilby (1984) and Rainville et al. (1985) found that in nearly 80 percent of the pools surveyed in small streams, LWD was the structural agent forming the pool or associated with the pool. The influence that LWD has on the diversity of juvenile salmonid populations, with particular emphasis on the impact of timber harvest activities on that diversity, has been documented by Reeves et al. (1993). Fish populations are benefitted by both the cover and habitat diversity created by LWD and by the substrate environment for benthic invertebrates that serve as food (Sedell et al. 1984, Sedell et al. 1988, and Bisson et al. 1987).

Relatively large pieces of woody debris in streams influence the physical form of the channel, movement of sediment, retention of gravel, and composition of the biological community (Bilby and Ward, 1989). The relationship between size of individual LWD and its effects on channel morphology are influenced by a number of variables such as stream-flow energy, sinuosity, bank composition, and channel width. Bilby and Ward (1989) and Likens and Bilby (1982) describe LWD and its relationship to pool formation, gravel retention, channel orientation, and channel width. Once LWD enters the stream, their orientation and spacing may be more significant than their volume in influencing channel morphology and aquatic habitats (Platts et al. 1987).

LWD in this methodology is defined as a piece of wood having a minimum diameter of twelve inches and a minimum length of six feet. Root wads must meet the minimum diameter criteria at the base of the trunk but need not be at least six feet long. Four diameter ranges and two length ranges were selected to categorize LWD sizes in this inventory method:

Diameter Category		Length Category	
1.	1 - 2 feet	1.	6 to 20 feet
2.	2 - 3 feet	2.	over 20 feet
3.	3 - 4 feet		
4.	> 4 feet		

Each size category is further divided into four type categories according to condition or status of the LWD as follows:

1. Dead and down (D/D)
2. Dead and standing (D/S)
3. Perched (on the bank and soon to be in the stream channel area)
4. Live:
   a. coniferous; b. deciduous

The range of coverage of this LWD inventory includes two distinct zones: 1) the "instream zone," defined as the stream channel within bankfull discharge demarcations; and 2) the "recruitment zone," defined as that area beyond the instream zone encompassing the floodplain

CALIFORNIA FORESTRY ASSOCIATION

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October 18, 2012

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BOARD OF FORESTRY AND FIRE PROTECTION

Mr. Stan Dixon, Chairman
Board of Forestry and Fire Protection
Attn: Eric Huff Regulations Coordinator
P.O. Box 944246
Sacramento, CA 94244-2460

Reference: Noticed Rule Package - "Class II-L Identification Methods Amendments, 2012"

Dear Chairman Dixon,

The California Forestry Association (CFA) and its members have reviewed the proposed language in the above-referenced rule package noticed by the Board of Forestry (Board). CFA supports this proposed rule change and recommends that the Board adopt this rule package without significant modification.

This rule package accomplishes two significant goals. First, it clarifies the parameters needed to classify a Class II-L watercourse in an anadromous watershed. This is accomplished by listing significant identifying factors—including the ability to move large woody debris—which will help reduce confusion when classifying these watercourses. Second, the rule package specifically articulates the protection afforded to these Class II-L watercourses, including the maximum length of Class II-L that requires additional protection measures.

CFA believes that the noticed rule language, once adopted, will result in increased consistency in the implementation of Anadromous Salmonid Protection (ASP) rules related to Class II-L identification and protection.

Again, CFA strongly supports this proposed rule package, and we urge the Board to adopt this rule package. Thank you for the opportunity to provide comment on this matter.

Sincerely,

David Bischel
President

NATURAL RESOURCES AGENCY

EDMUND G. BROWN, JR., GOVERNOR

DEPARTMENT OF CONSERVATION

Managing California's Working Lands

CALIFORNIA GEOLOGICAL SURVEY

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BOARD OF FORESTRY AND FIRE PROTECTION

October 22, 2012

Board of Forestry and Fire Protection
Attn: Eric Huff
Regulations Coordinator
P.O. Box 944246
Sacramento, CA 94244-2460

Re: Proposed Rulemaking Regarding "Class II-L Identification Methods Amendments, 2012."

Dear Chairman Dixon and Members of the Board:

The California Geological Survey (CGS) has reviewed the proposed revisions to the Forest Practice Rules contained in Title 14 California Code of Regulations, titled *Class II-L Identification Methods Amendments, 2012*. These proposed rule revisions are contained in the 45-day notice circulated on September 7, 2012.

CGS offers two comments below that we believe will help to clarify the proposed rule revisions.

1. The definition of Class II-L watercourses in section 916.9(g)(1) states that Class II-L watercourses "(i) can supply significant influx of water and nutrients…, (ii) can supply coarse and fine sediment…, (iii) may be able to supply wood…". To clarify that not all three characteristics are necessary, CGS suggests modifying section 916.9(g)(B) as shown in the following bold and italicized text:

   916.9(g)(1)(B) Determination of Class II-L watercourses shall be verified in the field by direct observations of channel morphology including width and depth at bankfull stage, gradient, substrate, and flow regime, supplemented with local experience or site specific documentation. Class II-L watercourses have ***both*** the following observable characteristics:

   1. Significant flow contribution…
   2. Channel substrate…

   Class II-L watercourses may also have:

   3. Sufficient channel width…

2. CGS suggests modifying section 916.9(g)(B)(2) to make the cited size of the coarse sediment consistent with the standard sediment grain size classification of Wentworth, 1922. According to the Wentworth Grade Scale, gravel-sized particles have nominal diameters between 2 mm (0.18 inch) and 64 mm (2.52 inches), and cobbles have nominal diameters between 64 mm (2.52 inches) and 256 mm (10.1 inches). Gravel and cobbles are further subdivided by Wentworth as follows:
   - very fine gravel: 2.00 mm (0.18 inch) - 4.00 mm (0.16 inch),
   - fine gravel: 4.00 mm (0.16 inch) - 8.00 mm (0.32 inch),
   - medium gravel: 8.00 mm (0.32 inch) - 16 mm (0.64 inch),
   - coarse gravel: 16 mm (0.64 inch) - 32 mm (1.26 inch),
   - very coarse gravel: 32 mm (1.26 inch) - 64.00 mm (2.52 inches),
   - small cobble: 64 mm (2.52 inches) – 128 mm (5.04 inches), and
   - large cobble: 128 mm (5.04 inches) – 256 mm (10.01 inches).

   To be consistent with the above standard sediment size grading categories, CGS suggests modifying the proposed text as identified in the following bold and italicized text:

   916.9(g)(B)(2) Channel substrate that includes coarse sediment, and evidence of a flow regime capable of transporting coarse sediment (***coarse*** gravel and small cobble ~~***one***~~ ***0.64 inch*** to five inches (~~*1*~~5) in diameter or greater) to a Class I watercourse during peak flows.

We hope these comments aid in the Board's rule revision process. CGS staff will be available at the Board meeting to answer any questions you may have.

Sincerely,

original signed by

William R. Short, CEG
Supervising Engineering Geologist
Forest and Watershed Geology Program Manager

Reference:

Wentworth, C. K., 1922, "A scale of grade and class terms for clastic sediments", J. Geology V. 30, 377-392.

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October 22, 2012

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BOARD OF FORESTRY AND FIRE PROTECTION

California State Board of Forestry and Fire Protection
Mr. Stan Dixon, Chairman
P.O. Box 944246
Sacramento, CA 94244-2460

RE: Class II-L Identification Methods Amendments, 2012.

Dear Chairman Dixon and Board Members,

CLFA supports the amendments to clarify identification of Class II-Large (L) as necessary and beneficial modifications to the Forest Practice Rules. Class II-L watercourses are a valuable resource and should be afforded appropriate protection. However, if the definition of Class II-L watercourses is not clear it can lead to undue burden on landowners through application of Class II-L protection measures where Class II-L attributes do not exist. Appropriate application of the protection measures to the intended watercourse qualities will help to maintain a healthy environment while protecting the viability of timberlands and help to build a strong economy.

The existing language in the rules pertaining to the identification of Class II-L watercourses is not clear and has led to discrepancies on Class II watercourse typing in the field during Timber Harvest Plan review. These discrepancies have occurred not only between foresters and review team personnel but even amongst the review teams themselves. Evidence of the disharmony between agencies can be shown in the excerpt below from a pre harvest inspection report.

> DFG is aware of the concept of "Dominant Flow" according to CAL FIRE (2010) to assist in determining Class II watercourse types. There appears little in the ASPs to support "Dominant Flow" as a field indicator. DFG's determination is consistent with the rule language of 14 CCR 916.9 (g)(1)(B)1. The "Dominant Flow" concept is a departure from it. In addition to being a deviation from the adopted rule language, determining "Dominant Flow" is wrought with interpretative and methodological complications.

The excerpt above is not included to indicated that any agency is incorrect in their interpretation, but to show that a level if disagreement does exist. Given this lack of clarity it is difficult for field foresters to accurately identify Class II-L watercourses.

The modifications to the rules proposed in these amendments will improve the definition of a Class II-L watercourse making it easier for foresters to identify them and aid the agency personnel in verifying that the typing is consistent with the rules of the Board. However, adding the term "significant influx" without defining the term in regards to water flow will not alleviate the concern over "dominant flow" indicated above. As held in the name, Class II-LARGE, there needs to be a clear metric of what constitutes a large Class II watercourse. Other examples that truly add clarity include the definitions of both course sediment and large wood which can make consistent field determinations possible. Having these qualities defined will allow foresters and review personnel to engage in reasoned discussions on-site during pre-harvest inspections to verify the accuracy of watercourse typing.

CLFA does not support the changes made to 14CCR 916.9(g)(1)(E). The proposed change would ensure that a minimum of 1000 feet of protection are applied to a Class II watercourse once it was typed as a Class II-L, regardless of how much of the channel displayed Class II-L characteristics. If Class II-L characteristics existed in a channel much shorter than the 1000-foot minimum it would seem appropriate to only apply the protection measures to the portions of channel that needs them. Examples of actual watercourses with Class II-L characteristics of variable lengths, many shorter than 1000 feet, were presented by Mr. Pete Ribar of Campbell Timberland Management at the April 3, 2012 Forest Practice Committee meeting. Applying extra protection measures on channels that do not exhibit the qualities intended for protection seems an undue pressure on landowners who are trying to maintain economic viability.

CLFA supports giving foresters and agencies clear direction for protecting these valuable resources (Class II-L watercourses) to maintain a healthy environment while protecting economic viability of timberlands and supporting the economy of the state.

Sincerely,

REGISTERED PROFESSIONAL FORESTER
MATT GREENE
No. 2747
STATE OF CALIFORNIA

Matt Greene, RPF #2747
President

The California Licensed Foresters Association, with a membership responsible for the sustained management of millions of acres of California forestland, represents the common interests of California Registered Professional Foresters. The Association provides opportunities for continuing education and public outreach to its membership, which includes professionals affiliated with government agencies, private timber companies, consultants, the public, and the academic community. Governed by an elected Board of Directors, CLFA was established in 1980 after the passage of the landmark California Professional Foresters Law.

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

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BOARD OF FORESTRY AND FIRE PROTECTION

22 October 2012

Board of Forestry and Fire Protection
Attn: Eric Huff
Regulations Coordinator
P.O. Box 944246
Sacramento, CA 94244-2460

SUBJECT: CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD'S COMMENTS ON "CLASS II-L IDENTIFICATION METHODS AMENDMENT 2012"

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) appreciates the opportunity to comment on the Board of Forestry's proposed revisions titled "Class II-L Identification Methods Amendments, 2012." While the Central Valley Region contains no watersheds in the Coastal Anadromy Zone, the Region does contain watersheds with listed anadromous salmonids that are subject to Class II-L regulations. As such, it is important to provide both a technical and regional perspective on the proposed amendments to the Class II-L-related rule language.

Difficulties with Current and Proposed Class II-L Language

The existing and proposed Class II-L language is vague, often conflicting, and lacks clear decision criteria for the determination of Class II-L status. For instance, a Class II-L watercourse is partly defined as a watercourse that: 1) can supply [significant influx of] water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff; 2) can supply coarse and fine sediment to the Class I channel; and 3) may be able to supply wood of a size that would function as large wood for the class I watercourse. These criteria are not sufficiently clear since subsurface water, nutrients in the hyporheic zone, and fine sediment (i.e., < 2 mm) are capable of being transported by virtually all Class II streams. This begs the question, "Are all Class II streams Class II-L?" The definition is also vague because it doesn't give clear guidance on exactly what values and functions should be maintained, protected, and/or restored. For example, do we want to store or route coarse sediment to Class I watercourses? Do we want to route functional large woody debris (LWD) to Class I watercourses, or store it within the Class II watercourses to facilitate sediment storage above the Class I watercourses?

As alluded to in the previous paragraph, depending upon the interpretation of how one maintains, protects, and/or restores specific values and functions, there are instances where managing for certain values and functions will be done at the expense of others. Case in point, if we are managing Class II watercourses to provide coarse gravel to Class I watercourses, fine sediment will be delivered along with the coarser material. If our goal is to deliver LWD to Class I watercourses, flows large enough to move LWD will generally move fine and coarse sediment as well. These may be an unfavorable outcomes if the Class I watercourse is severely aggraded with coarse sediment or has fine sediment impacts. We need to be more explicit

about the types of functions and processes we are maintaining, protecting, and restoring, since there are tradeoffs for managing one function over another.

The lack of explicit decision criteria make it difficult to decide how a Class II-L watercourse is identified. Does a Class II watercourse achieve Class II-L status when only one of the criteria is present, or when all five of the criteria (i.e., water, nutrients, fine sediment, coarse sediment, and LWD) are present? As mentioned above, virtually all Class II streams are capable of supplying subsurface water, subsurface nutrients, and fine sediment to Class I watercourse. Hence, all Class II watercourses meet at least 3 out of the 5 criteria for Class II-L watercourses.

Making Classification Criteria Explicit

The Central Valley Water Boards suggests making the criteria for classifying Class II-L watercourses more explicit so that conflicts over Class II-L determination are minimized. Classification should be based on observable field conditions. This could be done through two possible options.

Option 1. Adopting a Process-Based Decision Matrix for Class II-L Determination

The most technically defensible option would be to adopt a process-based classification matrix for Class II-L determination. Much like the method presented in the draft VTAC guidance document, a classification matrix could rapidly characterize site conditions, identify the functions and processes in need of maintaining, restoring, and/or protecting, and would assign the Class II-L prescription based on the assessment.

Option 2. Adopting Hard Criteria for Class II-L Determination

The easiest way to make Class II-L determination criteria explicit is to be clear about the type of watercourses we are trying to protect. It is clear that preventing thermal impacts to surface water is a major source of concern in watersheds with listed salmonids. Subsurface water is not subject to significant heating from direct solar radiation – the major source of heat to surface waters (Johnson, 2004). Hence, a hard criterion for Class II-L determination on streams subject to thermal impacts should take into account the potential for surface water to be heated by reductions in riparian shading. An example of a hard criterion might be the percent of watercourse length occupied by surface water (e.g., watercourses with 50 percent or more of its length with surface water), as this is a relative indicator of how exposed surface water is to potential thermal impacts from direct solar radiation. However, the problem with this criterion is that the variability of the wetted length of the channel varies throughout the year and by season.

An example of a hard criterion with limited temporal variability might be channel width. Channel width could be a useful default criterion when the RPF or regulators are unable to assess surface flow expression during the summer season. Channel width also scales with processes such as sediment transport, LWD transport, and presumably the likelihood of surface flow being present during the summer months. Ultimately, more robust criteria will need to be created over time through additional monitoring and research.

Since we recognize that the protection of thermal impacts isn't the only process and/or function worthy of protecting in non-fish bearing streams, another suggestion is to also protect streams that are potential sources of sediment and/or LWD to class I watercourses. The literature indicates that watercourses prone to mass wasting (e.g. debris flows) are potentially the largest sources of sediment to downstream waters (Benda et al., 2005). The entrainment of LWD in these types of watercourses can help reduce debris flow velocities, runout lengths, and facilitate

sediment deposition (May, 2002; Lancaster et al., 2003; Bunn and Montgomery, 2004), thereby reducing sediment delivery to Class I watercourses. Hence, a wider core zone to facilitate higher wood loading might be warranted in situations where watercourses are subject to periodic mass wasting events.

In short, Option 2 would rely on the following:

1. Observation of surface flow during the summer months so that thermal protection is afforded to watercourses susceptible to thermal impacts from canopy removal. A hard criterion such as percent length of wetted channel during the summer months could be used to make the determination;

2. If the determination cannot be made during the summer months, the criterion becomes a channel width;

3. Regardless of surface flow expression, Class II-L prescriptions would apply to watercourses subject to periodic mass wasting events.

A Need for an Adaptive Approach for Regulatory Revision

We still lack the necessary data to determine if multiple Class II categories are necessary, and whether the Class II and Class II-L prescription vary in their effectiveness to maintain, protect, and/or restore watercourses. The Central Valley Water Board recommends that the issue of Class II watercourse classification methods and protection schemes are explored with future effectiveness monitoring, and that the results of the monitoring are used to provide feedback for revision of Class II-related rules and regulations.

If there are any questions regarding the following comments, please contact Drew Coe at (530) 224-2437. Thank you for your time and cooperation.

Angela K. Wilson, P.G.
Senior Engineering Geologist

DC: jmtm

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References: See Attached Page

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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

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BOARD OF FORESTRY AND FIRE PROTECTION

October 16, 2012

Eric Huff
Regulations Coordinator
Board of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460

Dear Mr. Huff:

COMMENTS ON THE "CLASS II-L IDENTIFICATION METHODS AMENDMENTS, 2012"
45-DAY NOTICE PROPOSED RULEMAKING

Thank you for the opportunity to participate in the development of the subject rulemaking, which proposes modifications to the Anadromous Salmonid Protection (ASP) rules related to identification and protection of Class II-Large (Class II-L) watercourses. The Department supports adoption of Alternative 2, which clarifies the Class II-L protection distance.

The State Board of Forestry and Fire Protection (Board) approved the ASP rules at its September 2009 meeting and the rules became effective in 2010. The Board's stated intent for adopting the ASP rules was to protect, maintain, and improve riparian habitats for State and federally listed anadromous salmonid species. Due to the presence of State-listed coho salmon in many of the watersheds subject to the ASP rules, the California Department of Fish and Game (Department) provided substantive input during that process, and was generally supportive of the ASP rules package.

Anadromous salmonid habitat (Class I watercourses) is influenced by processes and land uses across the watershed. The condition and management of Class II and III watercourses tributary to salmonid habitat determines the timing and amount of watershed products that are delivered to salmonid habitat. Proper management of tributary watercourses is vital to successful management of anadromous salmonid habitat. Management as Class II-L is necessary in order to maintain <u>and restore</u> downstream Class I values in many places where they have been degraded.

The distinction between large and standard Class II watercourses is significant to meeting the Board's goal of protecting, maintaining, and improving habitat for State and federally listed anadromous salmonid species. In larger Class II watercourses (Class II-L), the ASP rules recognize the value of tributary watercourse conditions by providing increased retention measures in the lowest 1,000 feet. Several Department Species of Special Concern also find optimal habitat in the reaches subject to Class II-L designation. Habitat for these species is protected and maintained by the enhanced protection measures provided in the ASP rules.

To minimize risk to listed anadromous salmonids, the default protection measures should be the more protective (Class II-L), while the less protective (Class II-S) approach should

require a more rigorous level of substantiation/justification. The Department believes that the proposed rule changes require greater substantiation and justification when a project proponent wants to provide the more protective measures. This is a disincentive for salmonid habitat protection, which is counter to the intent of the ASP rules. The proposed amendments would likely reduce the number of watercourses to which Class II-L management measures are applied, and thereby not mitigate cumulative adverse effects to coho habitat.

The ISOR describes two aspects of the perceived problem: 1) differences of opinion in rule interpretation and application among the timber managers and the review agencies, and 2) as a result, too many Class II watercourses are receiving II-L protection. Based on participation in preharvest inspections and plan review, the Department believes neither of these points is well documented, and therefore, do not substantiate any problem with implementation of the existing rules.

The ISOR states the response to the perceived problem is the proposed amendment to the regulations that would 1) "*at a minimum ensure regulatory certainty for timber owners and managers*", and 2) "*provide clarity for those charged with enforcement of the regulations and review of proposed timber harvesting plans.*" The Department believes the proposed language does neither, and in fact may increase disputes among review agencies and the timberland managers. The proposed rules introduce the concept that a Class II-L provides a "significant influx" of water, but the rules fail to describe how that level is determined. The proposed rule changes fail to deal with subsurface flow, a major shortcoming about which the Department expressed concern on several occasions. A watercourse that provides flow to a Class I watercourse in July during an average water year is a significant contribution to suitable salmonid habitat.

The ISOR states monitoring is important to understand both the economic effects (page 8) and the environmental effects (page 7) of amending the regulation. The Department agrees that monitoring is important, but finds the current regulation has been in effect for less than 3 years – an inadequate period of time to document the magnitude or frequency of the perceived problem, or the environmental consequences. There has been neither economic nor environmental monitoring undertaken to date, thus there is no baseline to substantiate the environmental consequences. The proposed rule changes do not require monitoring either the environmental or economic consequences of the initial regulation or the proposal.

The Department believes that the proposed changes to existing Class II-L rules are not warranted at this time. The existing rule language has been in effect less than three years, and has rarely resulted in significant issues with project proponents. Also, where there are other more effective or more feasible measures to protect Class II-L functions than the current 916.9(g) widths and operational requirements, or where the measures are otherwise unnecessary, application of 916.9(v) ("Site-specific measures or nonstandard operational provisions") remains a prudent existing alternative to the proposed rule changes. The current language should continue to be used, time should be taken for the language and process to become well understood by all practitioners, and then a meaningful assessment of its effectiveness can be undertaken.

The Department, in coordination with the Department of Forestry and Fire Protection (CAL FIRE), jointly submitted minor proposed changes to the Forest Practice Committee in May, 2012 that clarify the Class II rule language (Attachment "May 2012 DFG-CAL FIRE Draft Class II-L Rule Text"). These changes are consistent with the minor clarifications described in the ISOR Alternative #2: Adopt Portion of Regulatory Proposal to Clarify Class II-L Protection Distance. The Department still supports these minor changes, and encourages the Board to adopt these as an alternative to the draft plead.

However, since the Forest Practice Committee and Board moved forward with the current proposed language, the Department also has attached a track-changes version of the proposed rule language for consideration (Attachment "Class II-L 45-day Notice Rule_DFG Edits to Miles Plead.final").

If you have any questions regarding these comments, please contact Joe Croteau, Timberland Planning Supervisor, Northern Region (Region 1) at (530) 842-0882 or by email at jcroteau@dfg.ca.gov.

Sincerely,

Sandra Morey
Deputy Director

Enclosures

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Anadromous Salmonid Protection Rules, 2012

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

Amend:

§ 916.9 [936.9, 956.9] Protection and Restoration in Watersheds with Threatened or Impaired Values.

Amend 14 CCR § 916.9 [936.9, 956.9] (c)(4):

(3) ****** an additional sediment filter on steeper slopes with high or moderate erosion hazard rating when tractor operations are proposed.

(4) Class II large watercourses (Class II-L): The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff as derived from long-term average precipitation data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA), (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Recruitment, delivery and retention of large wood in Class II- L type watercourses is also critical, as large wood increases sediment storage and decreases the rate of sediment transport to fish-bearing Class I watercourses. Other objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (c)(1) and (2) above for the Core Zone and Inner Zone are also desired objectives for Class II-L type watercourses.

(5) A primary objective for all WLPZs is to implement practices to maintain****

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

(f) Class I watercourses – ******which delimb harvested trees on pathway over which heavy equipment would travel.

(g) Class II watercourses –

The following are the minimum requirements for Class II WLPZ delineation and timber operations. Differing rules are specified for watersheds in the coastal anadromy zone, the Southern Subdistrict of the Coast Forest District, and areas outside the coastal anadromy zone. WLPZ width ranges from 50 to 100 feet slope distance, depending on side slope steepness in the WLPZ and the watercourse type.

(1) Determine the Class II Watercourse Type: Class II watercourses are composed of two types - Class II-S (standard) watercourses and Class II-L (large) watercourses. A Class II-L watercourse is defined as a Class II watercourse that: (i) can supply water and nutrients to a Class I watercourse during the month of July during an average hydrologic year; (ii) can supply coarse and fine sediment to the Class I channel; and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Identification of Class II-L watercourse types shall be based on one or more of the office methods specified under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(A) and the field methods specified under 14 CCR § 916.9 [936.9, 956.9], subsection (g)(1)(B). Class II-S watercourses are those classified as Class II watercourses pursuant to 14 CCR § 916.5 [936.5, 956.5], but do not meet the definition of a Class II-L watercourse.

(A) Office-based approaches to identify potential Class II-L watercourses:

1. Stream order: After classifying the watercourses in an area pursuant to 14 CCR § 916.5 [936.5, 956.5], map all Class II watercourses in the area of consideration on current 1:24,000 scale U.S. Geological Survey topographic maps and determine stream order following the stream order method in 14 CCR § 895.1. Second order and third order Class II watercourses are potentially Class II-L watercourses.

2. "Blue Line" streams: Watercourses mapped with a blue or black line on current 1:24,000 scale U.S. Geological Survey topographic maps that are not Class I are inferred to be Class II-L watercourses.

3. Drainage area: A calculated drainage area known to produce mid-late summer flow based on past plan experience or local knowledge for an ownership or local region and extrapolated over the ownership or local area can indicate Class II-L watercourses.

(B) Field-based approaches to identify potential Class II-L watercourses: Determination of Class II-L watercourses shall be verified in the field by direct channel observations and local experience using one or more of the following approaches.

1. Determine by direct observation or by local knowledge of common mid-summer conditions if office mapped Class II-L watercourses contribute flow to a Class I watercourse at least through approximately July 15th following a year with at least average precipitation.

2. Observe channel characteristics such as channel width at bankfull stage, channel depth at bankfull stage, channel slope, mean entrenchment ratio, the presence of springs or seeps, and the presence of aquatic animal and plant life that require mid-summer flow.

3. Use continuous streamflow monitoring data from headwater watercourses to determine the watershed drainage area necessary to initiate mid-summer streamflow for a given ecoregion and extrapolate this data to other headwater basins in that ecoregion.

4. Methods that indicate subsurface flow such as: (1) observation of surface flow in upstream channels above sediment deltas or alluvial fans that have built up on flood plains or in the Class I or II watercourse channel near the confluence; and (2) audible

evidence of subsurface flow located below organic and inorganic debris burying a watercourse channel.

(C) Based on (A) and (B) above, make a determination if the Class II watercourse being evaluated meets the definition of a Class II-L watercourse in 14 CCR § 916.9 [936.9, 956.9], subsection (c)(4).

(D) Include documentation in the plan explaining how the Class II-L determination(s) were made within the plan area.

(E) All Class II-L watercourses designated above shall incorporate requirements stated in 14 CCR § 916.9 [936.9, 956.9], (g)(2) for a maximum distance of 1000 feet, or total length of Class II, which ever is less, measured from the confluence with a Class I watercourse.

(2) Class II WLPZ widths and operational requirements: All Class II WLPZs shall be composed******

Class II-L Identification Methods Amendments, 2012

[45-day Notice Published July 6, 2012]

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

Amend:

§§ 916.9 [936.9, 956.9](c)(4)	Protection and Restoration in Watersheds with Threatened or Impaired Values.
§§ 916.9 [936.9, 956.9](g)	Class II Watercourses

Amend 14 CCR § 916.9 [936.9, 956.9] (c)(4):

(3) ****** an additional sediment filter on steeper slopes with high or moderate erosion hazard rating when tractor operations are proposed.

(4) Class II large watercourses (Class II-L): The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff as derived from long-term average precipitation data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA), (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Large wood in Class II- L type watercourses and the WLPZ is also critical because large wood reduces sediment delivery to watercourses; increases sediment, nutrient, and water storage in Class II channels; and meters sediment, nutrient, and water transport to fish-bearing Class I watercourses. Recruitment of large wood must be ensured to maintain conditions where they are currently good, and to restore conditions where they have been diminished. Sediment and water storage in Class II channels can

lower water temperature flowing to downstream Class I waters. In addition to their role in providing for downstream Class I values, Class II-S watercourses have important intrinsic habitat values. Other objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (c)(1) and (2) above for the Core Zone and Inner Zone are also desired objectives for Class II-L type watercourses.

(5) A primary objective for all WLPZs is to implement practices to maintain****

(f) Class I watercourses – ******which delimb harvested trees on pathway over which heavy equipment would travel.

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

(g) Class II watercourses –

The following are the minimum requirements for Class II WLPZ delineation and timber operations. Differing rules are specified for watersheds in the coastal anadromy zone, the Southern Subdistrict of the Coast Forest District, and areas outside the coastal anadromy zone. WLPZ width ranges from 50 to 100 feet slope distance, depending on side slope steepness in the WLPZ and the watercourse type.

(1) Determine the Class II Watercourse Type: Class II watercourses are composed of two types - Class II-S (standard) watercourses and Class II-L (large) watercourses. A Class II-L watercourse is defined as a Class II watercourse that: (i) can supply water and nutrients to a Class I watercourse during the month of July during an average hydrologic year, inclusive of sub-surface flow; (ii) can supply coarse and fine sediment to the Class I channel; and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Identification of Class II-L watercourse types shall be based on one or more of the office methods specified under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(A) and the field methods specified under 14 CCR § 916.9 [936.9, 956.9], subsection

(g)(1)(B). Class II-S watercourses are those classified as Class II watercourses pursuant to 14 CCR § 916.5 [936.5, 956.5], but do not meet the definition of a Class II-L watercourse.

(A) Office-based ~~approaches~~ methods to assign preliminary Class II-L or Class II-S designations to watercourses:

1. Stream order: After classifying the watercourses in an area pursuant to 14 CCR § 916.5 [936.5, 956.5], map all Class II watercourses, then determine stream order following the stream order method in 14 CCR § 895.1. First and second order Class II watercourses are potentially Class II-S, while second order and larger Class II watercourses are potentially Class II-L watercourses.

2. "Blue Line" streams: Watercourses mapped with a blue or black line on current 1:24,000 scale U.S. Geological Survey topographic maps that are not Class I are potentially Class II-L watercourses. All other watercourses are potentially Class II-S.

3. Drainage area: A drainage area determined to flow during July of a year with average precipitation based on continuous streamflow monitoring data, past local experience and knowledge can indicate potential Class II-L watercourses. Long-term average precipitation data sets are available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA). This method may be applied to a vicinity wherein geologic, climatic, and hydrologic conditions are similar. Streams draining smaller areas are potential Class II-S.

(B) ~~Field-based approaches to identify potential Class II-L:~~ Determination of Class II-L and II-S watercourses shall be verified in the field by direct ~~channel~~ observations or site-specific documentation. Class II-L watercourses contribute flow to a Class I watercourse at least through approximately July 15th following a water year with at least average precipitation, inclusive of subsurface flows. The presence of springs or seeps or riparian associated species

indicate a Class II-L watercourse. Class II-S do not contribute flow to a Class I watercourse during July.

(C) Based on (A) and (B) above, make a determination if the portion of the Class II watercourse being evaluated meets the definition of a Class II-L watercourse in 14 CCR § 916.9 [936.9, 956.9], subsection (c)(4).

(D) Include documentation in the plan explaining how the Class II-S determination(s) were made for Class II segments within 1000 feet of the Class I confluence. Photographs, detailed analysis of potential stream temperature effects on receiving Class I waters, and/or other documentation depicting Class II flow regime and/or channel characteristics may be submitted by the RPF to support determination.

(E) All Class II-L watercourses designated above shall incorporate requirements stated in 14 CCR § 916.9 [936.9, 956.9], (g)(2) for a maximum distance of one-thousand (1000) feet, or total length of Class II-~~L~~, which ever is less, measured from the confluence with a Class I watercourse.

(2) Class II WLPZ widths and operational requirements: All Class II WLPZs shall be composed*******

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From: mwlaing <mwlaing@aol.com>

To: board.public.comments <board.public.comments@fire.ca.gov>; summerhillfarmpv <summerhillfarmpv@aol.com>; maggie66 <maggie66@aol.com>

Subject: 45 Day Notice "Class II-L Identification Methods Amendments, 2012

Date: Mon, Oct 22, 2012 11:01 am

Mr. Stan Dixon Chairman
Attn: Eric Huff, Regulations Coordinator
California Board of Forestry and Fire Protection
P. O. Box 944246
Sacramento, CA 94244-2460
Email: board.public.comments@fire.ca.gov

RECEIVED BY Matt Dias — FYI, pls give this letter to Stan Dixon and the other BOF members
Thanks,
Mike Laing
NCCFFF
10/22/2012 1:40 PM

OCT 2 2 2012

BOARD OF FORESTRY AND FIRE PROTECTION

Re:45-day notice "Class II-AL Identification Methods Amendments, 2012

Dear Chairman Dixon and Board Members:

The Northern California Council, Federation of Fly Fishers (NCCFFF) respectfully submits the following comments regarding the 45-day Notice of rule making for "Class II-L Identification Methods Amendments, 2012"

Summary: The NCCFFF has been following the development and implementing of the Anadramous Salmonid Protection rules since 2007 by participating in the scientific literature review of Forest Management effects on riparaian functions in salmoniod habitat. This scientific review of studies by a number of scientists and experts in the forest ecology. Following the literature review, the consulting firm of Sound Watershed Associates published their document "Scientific Literature Review of Forest Management Effects on Riparian Functions in Anadromous Salmonid Fisheries. We were regular participants in the Forest Practice Committee public meetings organized by Chris Zimny, regulations coordinator. Throughout this period from 2007-2009 we met regularly with Chris Zimny, Pete Cafferata .and Mark Stopher (DFG) and representatives of NOAA and the NCWQCB to gain understanding of the ASP regulations as they were developed. This was a very productive process in that we would receive position papers from Pete Cafferata called "Preliminary science based concepts for revised T/I rules". These summaries were of great value in that they explained the basic science being used to develop the proposed T/I rule language. Net, this process was very open, collegial and helped build confidence in the integrity of the new T/I rules.

My reason for providing this perspective is that the process used to develop the rule in the 45 day notice on class II-L identification methods did not follow the process described above. Here are some of the issues that are of concern to me:

1. There were multiple versions of the rule plead that passed through the committee and in some cases allowed insufficient time for public scrutiny and input. For example, there was a plead published in June 2012, Cal Fire-DFG Draft Rule plead, that included language requiring that subsurface flow be used to identify class II-L watercourses. (The DFG position on the importance of subsurface flows is outlined below). I am not sure if the BOF was aware of this joint CDF/DFG agreement or not. I would appreciate knowing the answer to this question.

2. The statement of reasons (page 6 of the ISOR states: "In summary the proposed regulation will not result in significant adverse effects". To dimension the environmental impact of adopting the proposed 45-Day notice rule that eliminates the consideration of sub surface flows, it is important to know where DFG stands on this issue. In a letter from Neil Manji, DFG regional manager, he states that "subsurface flows, within 1000' ft. of a class I watercourse should be considered "flow" when using field based approaches. "As we have expressed to CALFIRE previously, many class II watercourses are aggraded in their lower reaches near their class I confluences, and though fed by continuous flow upstream, exhibit no surface flow in lowest reach during the month of July during an average hydrologic year. In this example, the class II watercourse still provides an important source of stream flow and nutrients to the watercourse. Mr. Manji went on to say"although not specifically stated in the rule language, when making a class II-L designation, visual evidence of water, including standing water on reaches within 1000 ft. of a class I, is a field indicator of flow and nutrient contribution to the watercourse". In addition, in a conversation I had with Mark Stopher, the author of the Class II protection language in the current ASP rules, he restated the DFG position that "any flow, including subsurface flows at any location within the 1000' of a class II watercourse is enough to justify classification of the watercourse as a class II-L."

Another environmental effect to consider if the proposed plead is adopted is the impact on buffer widths and canopy cover requirements within the watershed. According to Mark Moore, retired DFG Environmental Scientist, many of the watercourses on Campbell Timberland properties are incised and have a significant sediment delta at the junction of the

class I watercourse. This sediment deposit makes it appear there is no water flowing into the class I steam however there can still be subsurface flow beneath the sediment. In this case, it would be possible to classify these incised streams as standard class II watercourses. The net effect would be to reduce the width of the Core Zone no harvest area from 30' to 15', reduce the inner Zone Width from 70' to 35' (typical for a slope of 35 %), and reduce the canopy post harvest requirement from 80% to 50%.

The potential to reduce the number of Class II-L watercourses clearly exists. As I have said in the past, the BOF is required by the public trust principle and the ESA to error on the side of caution (precautionary principle) and not make decisions that have the potential to reduce protections. I also recognize that the landowner has an economic interest in harvesting near class II WLPZ's and this question of identification of Class II-L is difficult to resolve. My suggestion is that the Board of Forestry return this plead (Miles proposal) to the Forest Practice Committee, instruct the committee to convene a panel of experts from scientific, environmental and industry groups and proceed to approach the question by developing a technical rule addendum (like has been successfully done for the road rules) that will guide CDF, DFG and Industry. A key part of this effort would be to develop a protocol and a monitoring procedure that can dimension the degree of risk to a Class I resulting from excluding certain Class II watercourses from the Class II-L designation. The Monitoring Study Group (MSG) is the logical group to participate or perhaps lead this effort. The MSG could use the bio-assessment techniques and procedures developed by DFG (Jim Harrington) to develop the data regarding the overall condition of the watercourse and the expected impact increased timber harvesting in areas classified as Class II-L watercourses. Hopefully, this process will help resolve the conflict between DFG and Industry and avoid the endless arguments about this issue.

Thank you for your consideration,

Michael W. Laing
Conservation Network
Northern California Council
Federation of Fly Fishers

Dr. Mark Rockwell, NCCFFF
Cindy Charles, NCCFFF Conservation V.P.

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

North Coast Regional Water Quality Control Board

October 22, 2012

RECEIVED BY
OCT 2 2 2012
BOARD OF FORESTRY AND FIRE PROTECTION

Mr. George D. Gentry
Executive Officer
Board of Forestry and Fire Protection
P. O. Box 944246
Sacramento, CA 94244-2460

Dear Mr. Gentry:

Subject: Comments on the Board of Forestry proposed revisions to the Class II-Large Identification Methods dated September 7, 2012, Title 14 of the California Code of Regulations

File: Timber, General

Enclosed are comments on the proposed revisions to the Class II-Large (Class II-L) Identification Methods dated September 7, 2012, Title 14 of the California Code of Regulations. The Anadromous Salmonid Protection Rules (ASP Rules), adopted by the Board of Forestry and Fire Protection (BOF) on October 7, 2009, introduced additional protection measures for watercourses designated as Class II-L. We submitted extensive comments on the ASP Rules and Class II watercourse protection measures at that time.

We also provided a more extensive evaluation dated September 3, 2009, of the effect of the ASP Rules relative to the Basin Plan water quality objective for temperature. The report, titled *Evaluation of Anadromous Salmon Protection Rules Relative to the Water Quality Objective for Temperature*, is attached to our comments on the proposed Class II-L rule changes.

We fully support adding clarity of intent and application to the existing rules, but we believe the proposed revisions go beyond that goal and will result in fewer Class II watercourses receiving Class II-L protection. In the attached comments, we have attempted to identify where we believe there are opportunities to improve the Class II-L Identification Methods consistent with state and regional water board requirements and policies.

Also attached is a copy of the June 2012 joint agency proposal, also known as the "Cal Fire-DFG Draft". It was a developed in collaboration with CalFire, the Department of Fish and Game, two Regional Water Boards (North Coast and Central Valley), and the National Marine Fisheries Service. We believe the joint agency proposal accomplishes the goal of clarifying the existing rules without altering either the intent or application. We would like to submit the joint agency proposal for the Board's consideration as an alternative to the September 7 version.

We urge the Board of Forestry to take an active role in recognizing and addressing the Regional Water Board and U.S. Environmental Protection Agency designations of streams and watersheds with consistent regulations that go beyond listed salmonid species to the other beneficial uses of water that may be impacted from timber harvesting activities.

If you or your staff have any questions regarding our comments, please contact David Fowler at 707-576-2756.

Sincerely,

Original signed by

Fred J. Blatt
Division Chief
Nonpoint Source and Timber Harvest

121022_DLF_dp_ProposedRuleChange_ClassII-L_CoverLtr

Enclosures:
1) Memo from David Fowler, Staff review of the proposed Class II-Large Identification Methods, October 2012
2) September 2009 Memo from Bryan McFadin, Evaluation of Anadromous Salmon Protection Rules Relative to the Water Quality Objective for Temperature
3) June 2012 Joint Agency Proposed Class II-L Rule Text

California Water Boards

Edmund G. Brown Jr., Governor

Matthew Rodriquez, Secretary for Environmental Protection

North Coast Regional Water Quality Control Board

TO: Fred Blatt
Division Chief
Nonpoint Source and Timber Harvest

FROM: David Fowler
Representing review staff

DATE: October, 22, 2012

SUBJECT: Review and Comments on the Board of Forestry proposed revisions to the Class II-Large Identification Methods dated September 7, 2012

The North Coast Regional Water Quality Control Board staff (Regional Water Board staff) have completed reviewing the proposed revisions to the Class II-Large (Class II-L) Identification Methods (Title 14 of the California Code of Regulations (14 CCR), Sections 916.9(c)(4) and (g)). We recognize the proposed changes attempt to provide clarity to the rules, a goal we fully support, but we are concerned that the revised text also introduces substantial changes to the rule language beyond clarification. The following discussion includes a brief background of the Class II-L designation, general comments on the rule package, and more specific comments keyed to the page in the proposed rules.

General Comments

The Anadromous Salmonid Protection Rules (ASP Rules), adopted by the Board of Forestry and Fire Protection (BOF) on October 7, 2009, introduced additional protection measures for watercourses designated as Class II-L. The new classification was designated in response to findings by the BOF's Scientific Literature Review that Class II watercourses provide substantial benefit in the form of cold water and nutrients to downstream fish-bearing (Class I) watercourses. Section 916.9(c)(4) states in relevant part, "The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply water and nutrients to a Class I watercourse during the month of July during an average hydrologic year, (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse."

Conflicts with Water Quality Objectives

In addition to the geographical limitations of the ASP Rules, Class II-L protections are limited to a maximum of 1,000 feet from a receiving Class I watercourse. Above the 1,000-foot limit, a Class II watercourse receives Class II Standard (Class II-s) protections regardless of the continuing presence of Class II-L characteristics. The water quality objectives defined in Regional Water Quality Control Plans (Basin Plans), however, apply to waters of the state, regardless of whether specific species are known to be present or the distance from fish-bearing streams.

The water quality objective for temperature contained in the North Coast Basin Plan states that the natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The report, *Evaluation of Anadromous Salmon Protection Rules Relative to the Water Quality Objective for Temperature*, submitted with our September 2009 ASP Rules Comments, makes it clear that Class II-s protections may not be adequate to meet the temperature objective. We are concerned that the proposed Class II-L Identification Methods will result in fewer Class II watercourses receiving Class II-L protection and create a situation where CAL FIRE approves plans that would violate the Basin Plan temperature objective. We recommend that rules be developed that are consistent with applicable water quality objectives in all stream reaches, particularly with respect to temperature.

Subsurface Flow Contribution

The proposed revisions to the Class II-Large Identification Methods do not address contribution of subsurface flow from Class II watercourses to receiving Class I watercourses. In many areas, it is common for Class II watercourses to exhibit substantial flow in up-stream reaches, but revert to subsurface flow in the coarse sediments adjacent to a receiving Class I watercourse. Subsurface flow from an up-stream Class II watercourse may provide substantial cold water input as a result of adequate shade from riparian canopy. We suggest that specific language be developed to clarify the contribution from subsurface flow.

Specific Comments

The following comments relate to specific sections of the proposed Class II-Large Rules. Each comment is referenced to the corresponding Rule section (14 CCR) and page number.

Re: 916.9(c)(4) Class II large watercourses (page 1, line 15) and 916.9(g)(1) Determine the Class II Watercourse Type (page 2, line 20)

Regional Water Board staff oppose the insertion of the term "significant influx of." Although the Initial Statement of Reasons (ISOR) states the revision is to "clarify that Class II-L watercourses are a source of sustained, rather than intermittent, water flow," the revision is unnecessary since the original wording provides the stated goal. A Class II watercourse

that can supply water and nutrients during the month of July is by itself evidence of sustained rather than intermittent water flow.

Rather than adding clarification, this proposed revision adds ambiguity and a new requirement not originally intended. It requires that a Class II watercourse not only supply water and nutrients to a receiving Class I watercourse during the month of July, but that it supply a "significant influx of" water and nutrients. Regional Water Board staff are concerned about the use of the word "significant." On the one hand, "significant" is a very subjective term with no clear meaning, but on the other hand it connotes a statistical meaning that may be unreasonable. What is significant under one standard may not be significant under another. Regional Water Board staff assert that a Class II watercourse that can supply water and nutrients during the month of July is, by its very nature, supplying a significant influx of water and nutrients to the receiving Class I watercourse.

Regional Water Board staff recommend that the proposed revised wording, ""significant influx of", be removed.

Re: 916.9(g)(1)(A)(2) Office-based methods; "Blue Line" Streams (page 3, lines 10 through 12)

Although no changes are proposed to this section, Regional Water Board staff continue to oppose the use of "Blue Line" streams for any type of watercourse determination. As was stated in our comments on the ASP Rules in 2009, "Blue Lines" on U.S. Geologic Survey topographic maps are more an artistic device of the cartographer than a predictive tool for determining stream types. They are not useful tools for stream classification, for differentiating stream types or processes, or for determining water quality compliance for waters of the state.

Regional Water Board staff recommend deleting this subsection.

Re: 916.9(g)(1)(A)(3) Office-based methods; Drainage area (page 3, lines 13 through 16)

Regional Water Board staff are concerned by the repositioning of the phrase "for an ownership or local region." Hydrologic boundaries do not often coincide with ownership boundaries. A "calculated drainage area for an ownership" may or may not have any relationship to the *actual* drainage area "known to produce mid-late summer flow." This may result in incorrect watercourse classification.

Regional Water Board staff recommend rejecting the proposed repositioning of the phrase "for an ownership or local region."

Re: 916.9(g)(1)(B) Field-based methods (page 3, line 21)

Regional Water Board staff oppose the inclusion of the line "Class II-L watercourses have the following observable characteristics:" Where the existing language states that a

determination shall be verified "using one or more" of the listed methods, the revised wording requires that all the listed conditions are met. This new requirement along with the revisions to the field verification methods (discussed below) will have the practical effect of excluding almost all Class II watercourses from Class II-L protections.

Regional Water Board staff recommend revising the proposed language to read: "Class II-L watercourses may have one or more of the following ~~observable~~ characteristics:"

Re: 916.9(g)(1)(B)(1) Field-based methods: "Significant" flow (page 3, line 22 through page 4, line 2)

Regional Water Board staff oppose the proposed new term "significant flow contribution." This revision adds ambiguity and a new requirement not originally intended. It requires that a Class II watercourse not only contribute flow to a receiving Class I watercourse through approximately July 15th, but that it makes a "significant flow contribution." The term "significant" is very subjective and without definition. Additionally, the proposed new text is very unclear. It lists several characteristics that "may indicate a significant flow regime," but gives no indication of what would constitute a "significant flow contribution." A Class II watercourse that shows none of the listed characteristics may still provide substantial cold water contribution.

Regional Water Board staff recommend rejecting the proposed revisions and retaining the existing language of this subsection.

Re: 916.9(g)(1)(B)(2) Field-based methods: Channel substrate (page 4, lines 3 through 8)

Regional Water Board staff oppose the proposed revisions to this subsection. We are concerned that the revised text would exclude a significant number of Class II watercourses that contribute water and nutrients to receiving Class I watercourses from Class II-L protections. The ability to transport cobbles is a function of stream velocity, not just discharge volume. A Class II watercourse may contribute cold water throughout the summer, but not have sufficient velocity to transport large cobbles. Due to the new language added to 916.9(g)(1)(B), any Class II watercourse that does not exhibit sufficient velocity to transport cobbles one to five inches in diameter would be excluded from Class II-L protections, regardless of any other indication of water and nutrient contribution.

Regional Water Board staff recommend rejecting the proposed revisions and retaining the existing language of this subsection.

Re: 916.9(g)(1)(B)(3) Field-based methods: Channel width (page 4, lines 9 through 14)

Regional Water Board staff oppose the proposed revisions to this subsection. Similar to subsection (2) discussed above, we are concerned that the revised text would exclude a significant number of Class II watercourses that contribute water and nutrients to receiving Class I watercourses from Class II-L protections. Due to the new language added to

916.9(g)(1)(B), any Class II watercourse that does not exhibit the ability to transport logs greater than 12 inches in diameter and six feet long would be excluded from Class II-L protections, regardless of any other indication of water and nutrient contribution.

Regional Water Board staff recommend rejecting the proposed revisions and retaining the existing language of this subsection.

Re: 916.9(g)(1)(E) Class II-L Protection distance (page 4, lines 9 through 14)

Regional Water Board staff continue to oppose distance limitations for protections of Class II-L streams. As was stated in our comments on the ASP Rules in 2009, this approach is inconsistent with the water quality objectives compliance and beneficial use designations contained in Regional Water Quality Control Plans, since it may allow temperature alterations upstream of the 1,000 foot distance and create a situation where plans could be approved that lead to exceedences of water quality objectives. Class II-L protection measures should extend the entire length of the watercourse where Class II-L conditions exist.

Regional Water Board staff suggest the following changes to the wording: "(E) All Class II-L watercourses designated above shall incorporate requirements stated in 14 CCR § 916.9 [936.9, 956.9], (g)(2) for the greater of either a ~~maximum~~ distance of one-thousand (1000) feet or the total length of Class II-L~~, whichever is less,~~ measured from the confluence with a Class I watercourse."

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California Regional Water Quality Control Board
North Coast Region
Bob Anderson, Chairman

Linda S. Adams
Secretary for Environmental Protection

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Arnold Schwarzenegger
Governor

September 3, 2009

To: Robert Klamt
Chief, Timber and Non-point Source Division

From: Bryan McFadin, PE
Senior Water Resource Control Engineer

Subject: Evaluation of Anadromous Salmon Protection Rules Relative to the Water Quality Objective for Temperature

Introduction

This document is intended to identify and describe Regional Water Board staff concerns regarding stream temperature issues that remain unaddressed by Cal Fire's proposed *Anadromous Salmon Protection Rules*. Regional Water Board staff have reviewed the proposed *Anadromous Salmon Protection Rules* (ASP rules) originally published May 8, 2009, re-noticed July 24, 2009, as well as the *Initial Statement of Reasons, Questions and Answers "Threatened and Impaired Watershed" regulation proposal A Basis for the Initial Statement of Reason* (Q&A), and the *Scientific Literature Review of Forest Management Effects on Riparian Functions for Anadromous Salmonid*s (literature review) documents. We believe that the proposed rule package represents a substantial step forward in protection of stream temperatures in California. In particular, we believe the designation of no-cut "core zones" accompanied with high retention "inner zones", as well as the establishment of the Class II-L stream classification, are major steps towards ensuring that forest practices will not result in exceedences of the water quality objective for temperature. Implementation of the proposed rules will substantially reduce the number of temperature-related conflicts in the timber harvest review process.

The literature review presents discussion of many of the factors and thermodynamic processes that affect stream temperature. Many of the thermodynamic principles outlined in the literature review are concepts that we agree on. Some of these include:

- Shade is a key factor, and the most important factor in limiting heat inputs from the dominant heat source, solar radiation.
- The relative importance of riparian vegetation varies by location.
- Riparian effectiveness depends on vegetation height and density.

- The effectiveness of riparian vegetation in providing shade to a watercourse decreases with channel width.
- Solar exposure is influenced by channel morphology, width, orientation, and topography.
- Stream temperatures are ultimately determined by a suite of factors.
- Thermal conditions respond to downstream riparian conditions as water flows downstream.
- Stream temperatures respond to tributary and groundwater inputs.
- Temperatures are moderated by hyporheic exchange, the magnitude of which is a function of bed composition and channel morphology.
- Heat exchange is affected by the depth, velocity, and volume of a stream.
- Air temperatures vary by location, and affect stream temperatures.
- Timber harvest can influence microclimate.

Despite these broad areas of agreement, there remain aspects of the science of stream temperatures and the approach to managing them that our staff interpret differently. These remaining issues are:

- Managing for natural temperatures vs. a specified temperature range or criterion.
- The concept of stream temperature relaxation downstream of heat inputs.
- The influence of forestry activities on microclimate, and effects of microclimate on stream temperatures.

Our concerns related to each of these aspects are described in detail, below.

Natural Temperatures vs. Specified Range:
The Regional Water Quality Control Boards are charged with protecting the water quality of waters of the state by ensuring compliance with water quality objectives (e.g. temperature, suspended sediment, settleable material, dissolved oxygen, etc) and protection of beneficial uses (e.g. cold freshwater habitat; rare, threatened, or endangered species; spawning, reproduction, and/or early development, etc.), as described in each regions' respective Water Quality Control Plan.

The North Coast Region's water quality objective for temperature states:

> "The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.
>
> At no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temp erature.
>
> At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving wat er temperatures."

The term "COLD" refers to cold freshwater habitat and "WARM" refers to warm freshwater habitat. The cold freshwater habitat beneficial use is defined as:

> "Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates."

Similarly, the warm freshwater beneficial use is defined as:

> "Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates."

The water quality objective for temperature identifies the natural temperatures that occur at a site as the default temperature standard, with an allowance for limited temperature alteration if it can be demonstrated that the alteration won't harm the beneficial uses. In practice, the most sensitive beneficial use of concern has most often been considered those related to salmonids, and in those cases the biological temperature requirements for rearing salmonids have used to defined the criteria for adverse impacts. This application is too narrow to be fully protective, especially considering the definition of COLD beneficial use. There may be other temperature sensitive species present in a waterbody that also require special management considerations, such as the southern torrent salamander. In all cases, the thermal needs of all beneficial uses present in a waterbody must be considered before an increase in temperature can be allowed.

The ASP Rules were developed to address the habitat needs of salmonids. The literature review discusses the temperature requirements of salmonids, and establishes the maintenance of those temperature conditions as a criterion for successful forest management. For example, the literature review states:

> "...some streams need more shade to maintain a suitable temperature regime than others because of its (sic) location and physical characteristics." -Ch 3, pg 21

and,

> "...streams that are naturally cool may become more favorable for growth as a result of shade reduction and stream warming." –Ch3, pg 22

Together, these statements imply that the thermal environment is protected as long as temperatures are within the range suitable for salmonids, and that streams that are colder than necessary to support salmonids can accommodate temperature increases. This approach is not compliant with the WQO for temperature, however, because the objective prohibits temperature increases without a demonstration that <u>all</u> beneficial uses wouldn't be adversely affected.

An implicit assumption within the literature review discussion of streams that do not support salmonids (variously described in the literature review as headwater streams, low-order streams, and Class II streams) is that forest practices are protective of salmonids if thermal impacts do not persist in downstream reaches where salmonids are present. The protection of Class II watercourses is the area of the ASP rules (and forest practice rules, generally) in which water temperature protections consistent with the Basin Plan temperature objective are most lacking. The establishment of the Class II-L watercourse designation and no-cut core zones are a substantial improvement over the previous rules. However, the rules remain oriented to protection of watercourses that have the potential to affect Class I streams, rather than the thermal protection of the cold-water ecosystems of Class II streams themselves.

The literature review discussion on page 17, chapter 3, concluded that because the magnitude of the headwater stream flows are small relative to the flow of fish-bearing receiving waters, the temperature of the receiving water is unlikely to be affected by temperature increases. This may be true, however the approach is only protective of the salmonid species in the Class I stream and ignores beneficial uses in the Class II streams. There is no discussion of the importance of the headwater streams in providing thermal refugia in the fish-bearing streams, which is more commonly the case in the north coast region, nor is there a discussion of the beneficial uses present in Class II streams and the thermal requirements of those beneficial uses. This logic results in the 916.9(g)(1)(B)(2) provision that allows a forester to re-classify a Class II-L watercourse to a Class II-S if she or he can demonstrate that the resulting downstream temperature of the receiving water will result in a temperatures above a specified temperature. The language goes on to dismiss very minimal mid to late-summer tributary streamflow as ecologically insignificant, based on the receiving Class I temperature, without acknowledging the beneficial uses of the Class II.

In justification of additional riparian protections along Class II streams the *Questions and Answers* document states the following:

> "High shade and high numbers of 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 the Class I watercourses."

This statement implies that some warming of Class II streams is acceptable because fish are not present. This approach is not compliant with the Basin Plan WQO for temperature, because the objective prohibits temperature increases without a demonstration of no adverse effects to beneficial uses.

The same logic is implicit in the ASP rule provisions of 916.9(g)(1)(D) that increase Class II-L riparian protections upstream of Class-I watercourses. The justification given

for the increased protections is temperature protection. If the increased protections are required to protect the temperature within 1000', what about the remainder of the Class II stream? This approach is also not compliant with the Basin Plan WQO for temperature.

The water quality objective for temperature requires that a cautious approach to stream temperature be followed, and that no stream temperature increase is allowable without a demonstration that the beneficial uses won't be adversely affected. By referencing the natural state as the default standard, the temperature objective ensures that all beneficial uses are protected in all of the waters of the state, our basic legal mandate. The proposed ASP rules are designed solely for the protection of salmonids. Thus, the proposed rules do not ensure compliance with the Basin Plan water quality objective for temperature in situations where salmonids are not present or where they are not the beneficial use most sensitive to elevated temperatures.

Relaxation vs. Acceleration

The proposed ASP rules incorporate the concept of stream temperature "relaxation" downstream of reaches with elevated heat inputs. The relaxation concept rests on the assumption that a stream that has had its temperature elevated in a reach exposed to solar radiation will lose heat and return to its original temperature once it leaves the exposed reach and re-enters a reach with the original conditions (Figure 1). The Literature Review discusses studies that reported cooling in the downstream direction, but is silent regarding studies that reported no downstream cooling following harvest (e.g. Brown et al 1971, Storey and Cowley 1997 as cited in Moore et al 2005) The literature review also states that the temperature response is a function of many variables, that the factors governing downstream temperature response are consistent, and that the primary drivers would apply anywhere. The Literature Review further states more research is needed in California. Regional Water Board staff agree that more research is needed on this topic. Because the relaxation concept is dependent on equilibrium temperature, it is prudent to evaluate this concept given the climatic conditions of California now and in the future.

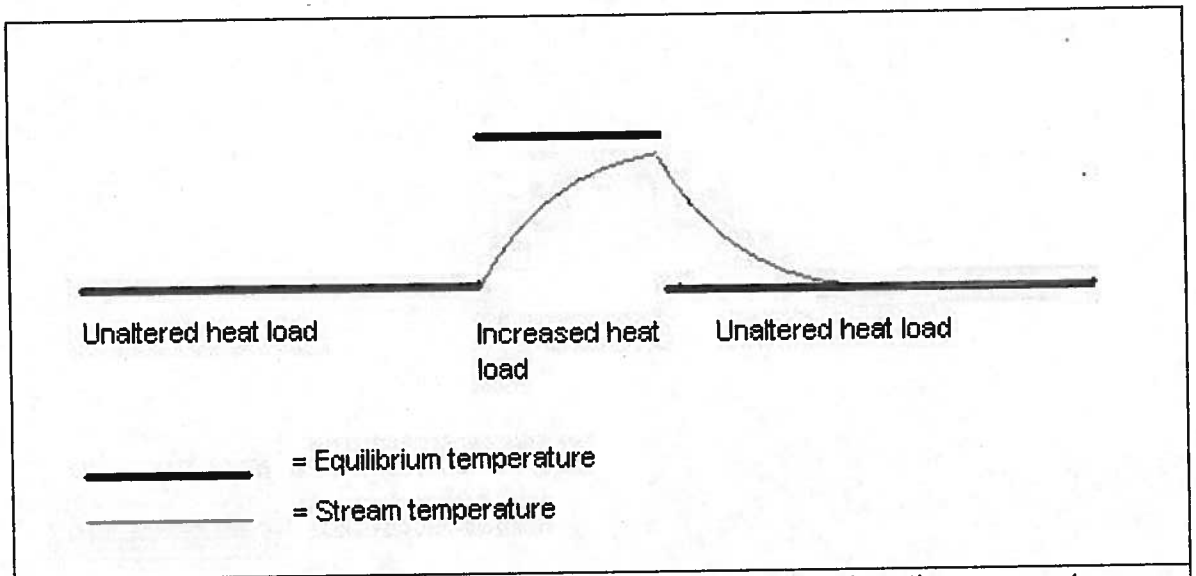

Figure 1: Graphic illustration of the stream temperature relaxation concept.

What the Literature Review does not do is recognize that the initial equilibrium temperature for such an example may not be "natural" and thus not meet the Basin Plan WQO for temperature in the first place. Given that equilibrium temperature is a fundamental concept in the stream temperature relaxation concept, it is notable that the *Literature Review* lacks any discussion that puts stream temperature dynamics in the context of equilibrium temperature. Equilibrium temperature is defined as the temperature that occurs when a balanced is achieved between heat sources and sinks (Bogan et al, 2003, Caldwell et al, 1991).

The second law of thermodynamics guarantees the temperature of a stream will trend towards the equilibrium temperature. Newton's law of cooling tells us that the rate of temperature increase will be proportional to the difference between the waterbody's temperature and the equilibrium temperature. This process continuously determines stream temperatures (Bogan et al, 2003). Effective management of stream temperatures for coldwater ecosystems is about limiting heat inputs to streams that are below equilibrium in order to minimize the rate of heating as the waterbody trends toward equilibrium (Figure 2).

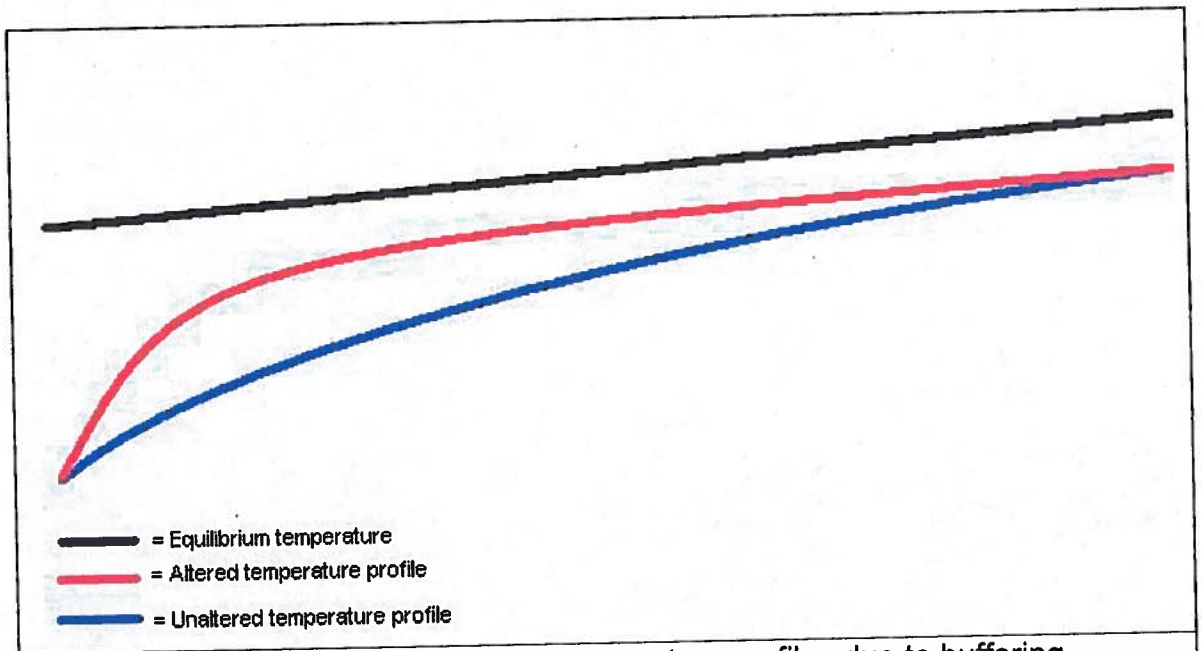

Figure 2: Illustration of difference in temperature profiles due to buffering.

In cases where water temperatures are relatively far from equilibrium temperature (such as downstream of springs, areas of high groundwater discharge, or melting snow) an increase in heat load may cause an increase in temperature that can't be mitigated by downstream conditions (Figure 3). In those situations the result is an acceleration of stream temperature in the downstream direction, rather than a localized increase quickly followed by an equal decrease. Management measures should be designed to prevent increased heat loads when the temperature of a waterbody is uniquely cold, regardless of stream classification.

Regardless of the downstream cooling that may or may not occur, any temperature increase more than 5 °F constitutes a Basin Plan violation, and any increase in water temperature that adversely affects beneficial uses constitutes a Basin Plan violation. Given that stream temperatures are very sensitive to solar radiation inputs (Sound Watershed Consulting 2009), it is not unlikely that even modest increases in solar radiation can result in temperature increases of 5 °F or more.

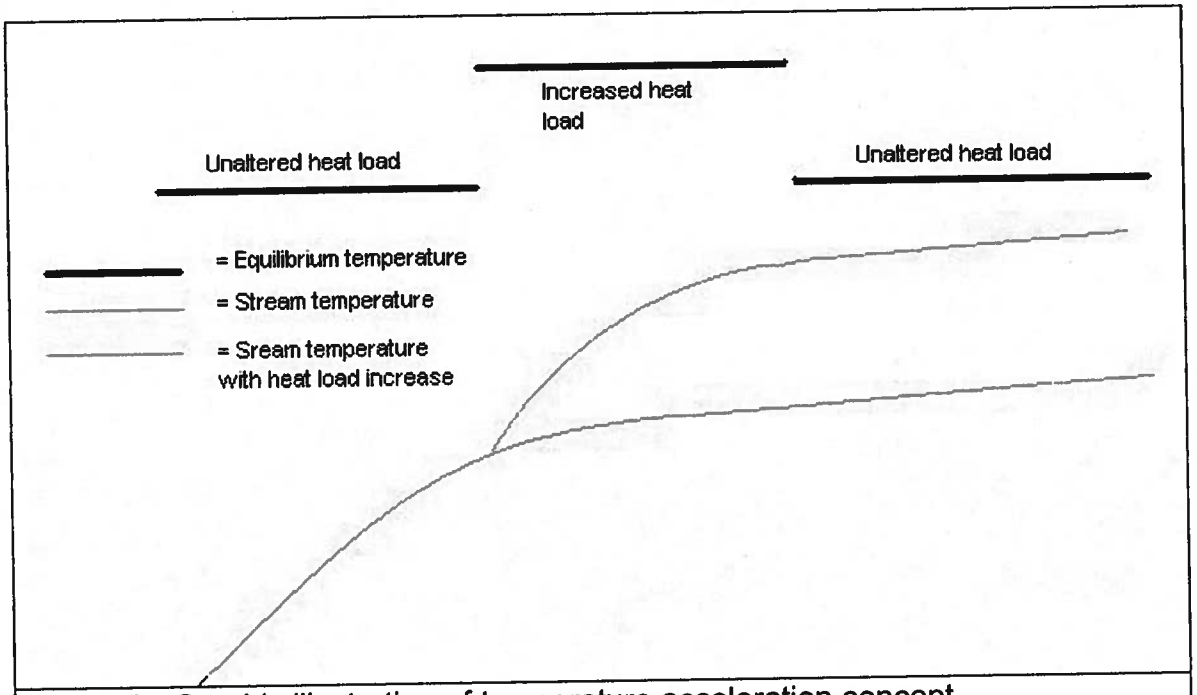

Figure 3: Graphic illustration of temperature acceleration concept.

Forest management and regulatory approaches that incorporate the concept of temperature relaxation should also consider the possibility of temperature acceleration as the response to the same management action, depending on the setting. The factor that determines whether or not a stream will "relax" is the equilibrium temperature. Streams that cool downstream of riparian harvest do so because the equilibrium temperature increases through the affected reach, then decreases in the downstream cooling reach. In these situations, the stream is already near equilibrium temperature. This is not always the situation, however.

One of the major heat sinks downstream of heat sources is the loss of heat to the hyporheic zone via conduction (Johnson 2004, Moore et al 2005). In these cases the heat is not lost from the stream environment. Rather, the alluvial substrate retains some of the heat, while some is lost to the largest heat sink, the earth (Poole and Berman 2001). These alluvial substrates are habitat for benthic species whose incubation and growth rates are affected by temperature (Moore et al 2005).

The use of the equilibrium temperature concept as a decision making criterion may be a reasonable approach for quantifying a waterbody's sensitivity to increased heat loads. Regional Water Board staff suggest a collaboration with Cal Fire staff on an approach prior to making use of the equilibrium concept in forest management decision making.

Microclimate

The Literature Review discussion concludes that none of the studies reviewed demonstrated a stream temperature change attributable to changes in microclimate, and summarily dismisses the concept that management-related changes in near-stream

microclimate may affect stream temperatures. The Literature Review justifies this, in part, by pointing out that the heat exchange between air and water occurs at rates that are an order of magnitude less than rates of heat input from solar radiation. Regional Water Board staff agree that solar radiation dominates all other natural heat sources, but also recognize that air temperature is perhaps the single largest factor that determines equilibrium temperatures, particularly in streams with low solar radiation inputs (Bogan et al, 2003).

We find the Literature Review's conclusion regarding microclimate inconsistent with their discussion of the coastal influence on water temperatures. We recognize that fog is a factor near the coast, but note that even the streams with 75-100% canopy closure showed an average temperature difference of approximately 1.5 °C temperature between those in and out of the zone of coastal influence (Figure 3, Literature Review). We also note that the majority of microclimate studies in the literature focus on defining the change in microclimates that occur as a result of vegetation removal, while very few studies have evaluated stream temperature changes associated with microclimate changes. Given the lack of definitive study results, what is known regarding stream heat exchange, and climate changes in the future, Regional Water Board staff have determined that more study of this topic is prudent.

Summary

In conclusion, we commend Cal Fire staff and the Board of Forestry for proposing rules that provide significant riparian protections. The proposed rules will result in riparian protections that achieve the water quality objective for temperature in a substantial number of situations in the North Coast, particularly Class I streams. It is clear, however, that these rules were not developed to comply with the water quality objective for temperature, specifically. The Basin Plan is hardly mentioned in the rules, and the literature review, *Question and Answers*, and *Initial Statement of Reasons* documents do not identify the water quality objective for temperature as being a management criterion, or a water quality standard that must be met for compliance with the law. The fact that water temperature increases are anticipated as a result of implementation of the rules, without any discussion of the effects on beneficial uses, also indicates that these rules were not crafted to achieve compliance with the Basin Plan. One might also question of the requirements of the California Environmental Quality Act are met in terms of identifying and mitigating water temperature effects.

Without an analysis of effects of temperature increases on beneficial uses, Regional Water Board staff are unable to make a determination that the proposed rules ensure compliance with the water quality objective for temperature. Additionally, the possibility of temperature increases more than 5 °F must also be evaluated. Without these analyses, and given the narrow geographic extent of the application of the proposed rules, we are left to conclude that the proposed rules do not fully comply with the Basin Plan, and must identify the real possibility that many timber harvesting plans compliant with the rules may need modifications in order to comply with the Basin Plan. This is likely true to a larger extent in other regions that do not have the geographic extent of

anadromous salmonids, and to which even Class I streams would not receive the additional protections of the proposed rules.

Additionally, without these analyses the proposed rules are not sufficient for certification as a third party regulatory program, consistent with the Non-Point Source Policy, and thus cannot serve as the basis as a waiver of waste discharge requirements. That fact has been stated in public meetings in the last year, most notably during the Regional Water Board hearing on the conditional waiver for timber harvesting on non-federal lands on June 4, 2009. Regional Water Board staff wish to resolve the remaining issues in order to move towards waiver certification, and wish to do so collaboratively with Cal Fire staff. We urge the Board of Forestry and Fire Protection to direct its staff to work with the Regional Water Board staff to bring the Forest Practice Rules into compliance with water quality regulations regarding beneficial use protection from elevated water temperature.

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Bogan. T., O. Mohensi, and H. G. Stefan. Stream temperature-equilibrium temperature relationship. *Water Resour. Res.*, 39(9), 1245, 2003.

Caldwell, J., K. Doughty, K., K. Sullivan. 1991. Evaluation of downstream temperature effects of 4/5 waters. T/F/W Report No. WQ-91-004, Timber Fish and Wildlife, Olympia WA, 71 pp.

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Moore, R. Dan, D. L. Spittlehouse, and Anthony Story, 2005. Riparian Microclimate and Stream Temperature Response to Forest Harvesting: A Review. Journal of the American Water Resources Association (JAWRA) 41(4):813-834.

Anadromous Salmonid Protection Rules, 2012

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

Amend:

§ 916.9 [936.9, 956.9] Protection and Restoration in Watersheds with Threatened or Impaired Values.

Amend 14 CCR § 916.9 [936.9, 956.9] (c)(4):

(3) ****** an additional sediment filter on steeper slopes with high or moderate erosion hazard rating when tractor operations are proposed.

(4) Class II large watercourses (Class II-L): The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) can supply water and nutrients to a Class I watercourse during the month of July during a year of average precipitation and runoff as derived from long-term average precipitation data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA), (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Recruitment, delivery and retention of large wood in Class II- L type watercourses is also critical, as large wood increases sediment storage and decreases the rate of sediment transport to fish-bearing Class I watercourses. Other objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (c)(1) and (2) above for the Core Zone and Inner Zone are also desired objectives for Class II-L type watercourses.

(5) A primary objective for all WLPZs is to implement practices to maintain****

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

(f) Class I watercourses – ******which delimb harvested trees on pathway over which heavy equipment would travel.

(g) Class II watercourses –

The following are the minimum requirements for Class II WLPZ delineation and timber operations. Differing rules are specified for watersheds in the coastal anadromy zone, the Southern Subdistrict of the Coast Forest District, and areas outside the coastal anadromy zone. WLPZ width ranges from 50 to 100 feet slope distance, depending on side slope steepness in the WLPZ and the watercourse type.

(1) Determine the Class II Watercourse Type: Class II watercourses are composed of two types - Class II-S (standard) watercourses and Class II-L (large) watercourses. A Class II-L watercourse is defined as a Class II watercourse that: (i) can supply water and nutrients to a Class I watercourse during the month of July during an average hydrologic year; (ii) can supply coarse and fine sediment to the Class I channel; and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Identification of Class II-L watercourse types shall be based on one or more of the office methods specified under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(A) and the field methods specified under 14 CCR § 916.9 [936.9, 956.9], subsection (g)(1)(B). Class II-S watercourses are those classified as Class II watercourses pursuant to 14 CCR § 916.5 [936.5, 956.5], but do not meet the definition of a Class II-L watercourse.

(A) Office-based approaches to identify potential Class II-L watercourses:

1. Stream order: After classifying the watercourses in an area pursuant to 14 CCR § 916.5 [936.5, 956.5], map all Class II watercourses in the area of consideration on current 1:24,000 scale U.S. Geological Survey topographic maps and determine stream order following the stream order method in 14 CCR § 895.1. Second order and third order Class II watercourses are potentially Class II-L watercourses.

2. "Blue Line" streams: Watercourses mapped with a blue or black line on current 1:24,000 scale U.S. Geological Survey topographic maps that are not Class I are inferred to be Class II-L watercourses.

3. Drainage area: A calculated drainage area known to produce mid-late summer flow based on past plan experience or local knowledge for an ownership or local region and extrapolated over the ownership or local area can indicate ~~a~~ Class II-L watercourses.

(B) Field-based approaches to identify potential Class II-L watercourses: Determination of Class II-L watercourses shall be verified in the field by direct channel observations and local experience using one or more of the following approaches.

1. Determine by direct observation or by local knowledge of common mid-summer conditions if office mapped Class II-L watercourses contribute flow to a Class I watercourse at least through approximately July 15th following a year with at least average precipitation.

2. Observe channel characteristics such as channel width at bankfull stage, channel depth at bankfull stage, channel slope, mean entrenchment ratio, the presence of springs or seeps, and the presence of aquatic animal and plant life that require mid-summer flow.

3. Use continuous streamflow monitoring data from headwater watercourses to determine the watershed drainage area necessary to initiate mid-summer streamflow for a given ecoregion and extrapolate this data to other headwater basins in that ecoregion.

4. Methods that indicate subsurface flow such as: (1) observation of surface flow in upstream channels above sediment deltas or alluvial fans that have built up on flood plains or in the Class I or II watercourse channel near the confluence; and (2) audible

evidence of subsurface flow located below organic and inorganic debris burying a watercourse channel.

(C) Based on (A) and (B) above, make a determination if the ~~portion of the~~ Class II watercourse being evaluated meets the definition of a Class II-L watercourse in 14 CCR § 916.9 [936.9, 956.9], subsection (c)(4).

(D) Include documentation in the plan explaining how the Class II-L determination(s) were made within the plan area.

(E) All Class II-L watercourses designated above shall incorporate requirements stated in 14 CCR § 916.9 [936.9, 956.9], (g)(2) for a maximum distance of 1000 feet, or total length of Class II-~~L~~, which ever is less, measured from the confluence with a Class I watercourse.

(2) Class II WLPZ widths and operational requirements: All Class II WLPZs shall be composed******

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
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October 19, 2012

In response, replay to:
SWR/F/SWR3:DW

RECEIVED BY
OCT 23 2012
BOARD OF FORESTRY AND FIRE PROTECTION

Stan Dixon
Chairman, California Board of Forestry and Fire Protection
P.O. Box 944246
Sacramento, California 94244-2460

Dear Chairman Dixon:

The purpose of this letter is to provide the California State Board of Forestry and Fire Protection (BOF) NOAA's National Marine Fisheries Service's (NMFS) technical assistance regarding the Notice of Proposed Rulemaking "Class II-L Identification Methods, 2012" (proposed rule). We appreciate the opportunity to comment.

NMFS expects that existing Class II-L protection measures (Table 1) will adequately protect listed anadromous salmonids from most timber operations. However, we remain concerned that Class II-S protection measures may not be sufficient to reduce adverse impacts to listed anadromous salmonids from timber operations. The goal of the proposed rule is not to change these protection measures but rather clarify the methods for which a Registered Professional Forester (RPF) distinguishes the difference between a Class II-L and a Class II-S. Table 1 and Table 2 summarize the watercourse protections measures that are required in the California Forest Practice Rules (CFPRs) 916.9(g)(2) *et seq*. Changes to these protection measures are not being considered in this proposed rule change. However, NMFS is available to assist BOF in developing appropriate revisions to Class II-S protections measures to address our concerns of sediment delivery to Class II-S watercourses, thence Class I watercourses.

Zone	Width (ft)	Protection Measures
Core Zone	30	No Cut
Inner Zone	70	80% overstory canopy
		Retain 13 largest trees per acre
		Increase quadratic mean diameter

Table 1. Class II Large Watercourse and Lake Protection Zone protections within the geographic area for Anadromous Salmonid Protection in CFPRs.

Side Slope Class	Core Zone (no cut)	Inner Zone (50% overstory canopy retention)
<10%	0 ft	50 ft
10%-30%	15 ft	35 ft
30%-50%	15 ft	60 ft
>50%	15 ft	80 ft

Table 2. Class II Standard Watercourse and Lake Protection Zone protections within the geographic area for Anadromous Salmonid Protection in CFPRs.

To further improve effectiveness of this proposed rule change in meeting the goal of the Anadromous Salmonid Protection (ASP) rules (*i.e.,* 916.9(a)), we provide the following recommendations:

1. The proposed rule states that a Class II-L has a "significant flow contribution to a Class I watercourse at least through July 15th following a year with at least average precipitation." Water years with "average precipitation" can include water years that have a dry winter, but with either: 1) a very wet fall; or 2) a very wet spring. This variability within "average" years may cause RPFs to under-estimate the flow contributions and extent of Class II-L watercourses during average years with wet falls, and perhaps even over-estimate the flow contributions and extent of Class II-L watercourses during average years with wet springs. We are concerned that under-estimating the extent of Class II-L watercourses may lead to significant adverse impacts to listed anadromous salmonids from increased sedimentation, and decreases in large wood debris (LWD) in the years following timber operations. See Recommendation 1 in Enclosure 1.

2. Section 916.9(g)(1)(B)(3) requires the RPF to consider the channel width and depth at bankfull stage to allow the transport of large wood. At peak flows greater than bankfull stage, there is a larger wetted cross-sectional area which may facilitate the transport of large wood that would have not otherwise occurred at bankfull flow. RPFs should also be required to consider the transport potential of large wood at peak flows that are above bankfull stage. See Recommendation 2 in Enclosure 1.

3. The proposed rule implies that Class II watercourse would receive Class II-L protections if the watercourse meets all of the criteria in 916.9(g)(1)(B)(1-3). If this is what is intended by the proposed rule change, we oppose the proposed rule outright, because 1) very few Class II watercourses exhibit all three characteristics; 2) Class II-S protections do not address large wood recruitment, or prevent adverse impacts from increased sedimentation (Liquori *et al.* 2008); and 3) we believe this would be substantive deviation from the intent of the Anadromous Salmonid Protection (ASP) rules. See Recommendation 3 in Enclosure 1.

4. Section 916.9(g)(1)(D) requires the RPF to provide, in the Timber Harvest Plan (THP), an explanation for how the Class II-L determination(s) were made within the plan area. We believe this explanation should include a rationale for why potential Class II-L watercourses identified in "Office-Based Method" (916.9(g)(1)(A)(1-3) were not provided Class II-L protection measures. This rationale is necessary because, for Class II watercourses, significant adverse effects to listed anadromous salmonids are most likely to occur where the protection measures are reduced. See Recommendation 4 in Enclosure 1.

5. We believe that rules for Class II Watercourse Lake and Protection Zone delineation and timber operations in the Coastal Anadromy Zone should also be applied to the Southern Subdistrict of the Coast Forest District. See Recommendation 5 in Enclosure 1.

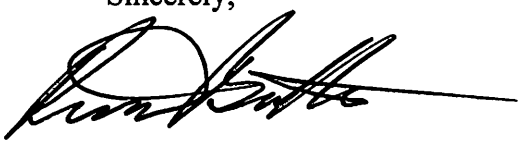
6. Section 916.9(g)(1)(A)(3) requires the RPF to calculate a drainage area for an ownership that would produce mid-late summer flow. Hydrologic boundaries do not often coincide with ownership boundaries. Therefore, a "calculated drainage area for an ownership" may or may not have any relationship to the actual drainage area "known to produce mid-late summer flow." The proposed rule should be revised to exclude ownership boundaries from this calculation. See Recommendation 6 in Enclosure 1.

7. For Section 916.9(g)(1)(B)(2, we recommend using Wentworth (1922) sediment size classification that is commonly referred to when classifying sediment sizes. See Recommendation 7 in Enclosure 1.

8. Section 916.9(g)(1)(E) unnecessarily limits the linear extent for which Class II-L protections are applied and we oppose this change. We believe that Class II-L protections should be applied where a Class II watercourse exhibits Class II-L characteristics. See Recommendation 8 in Enclosure 1.

Thank you for the opportunity to comment on the proposed rule changes. If you have questions or comments about this letter, please contact Mr. Dan Wilson at 707-578-8555 or dan.wilson@noaa.gov.

Sincerely,



Dick Butler
North Central Coast Office Supervisor
Protected Resources Division

Enclosure

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Scott Wilson, DFG Reg 3, Yountville
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References

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Class II-L Identification Methods Amendments, 2012

[45-day Notice Published July 6, 2012]

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

(Text In Red Are Recommended Edits From National Marine Fisheries Service)

Amend:

§§ 916.9 [936.9, 956.9](c)(4)	Protection and Restoration in Watersheds with Threatened or Impaired Values.
§§ 916.9 [936.9, 956.9](g)	Class II Watercourses

Amend 14 CCR § 916.9 [936.9, 956.9] (c)(4):

(3) ****** an additional sediment filter on steeper slopes with high or moderate erosion hazard rating when tractor operations are proposed.

(4) Class II large watercourses (Class II-L): The primary objective is to maintain, protect or restore the values and functions of Class II-L type watercourses described below. Class II-L type watercourses: (i) has the potential to supply a significant influx of water and nutrients to a Class I watercourse during the month of July ~~during a year of average precipitation and runoff~~ as derived from long-term ~~average~~ precipitation and runoff data sets available from CAL FIRE, U.S. Geological Survey, or National Oceanic and Atmospheric Administration (NOAA) **(RECOMMENDATION 1)**, (ii) can supply coarse and fine sediment to the Class I channel, and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Recruitment, delivery and retention of large wood in Class II- L type watercourses is also critical, as large wood increases sediment storage and decreases the rate of sediment transport to fish-bearing Class I watercourses. Other objectives stated in 14 CCR § 916.9 [936.9, 956.9] subsections (c)(1) and (2) above for the Core Zone and Inner Zone are also desired objectives for Class II-L type watercourses.

(5) A primary objective for all WLPZs is to implement practices to maintain****

(f) Class I watercourses – ******which delimb harvested trees on pathway over which heavy equipment would travel.

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

(g) Class II watercourses –

The following are the minimum requirements for Class II WLPZ delineation and timber operations. Differing rules are specified for watersheds in the coastal anadromy zone, ~~the Southern Subdistrict of the Coast Forest District~~ **(RECOMMENDATION 5)**, and areas outside the coastal anadromy zone. WLPZ width ranges from 50 to 100 feet slope distance, depending on side slope steepness in the WLPZ and the watercourse type.

(1) Determine the Class II Watercourse Type: Class II watercourses are composed of two types - Class II-S (standard) watercourses and Class II-L (large) watercourses. A Class II-L watercourse is defined as a Class II watercourse that: (i) can supply significant influx of water and nutrients to a Class I watercourse during the month of July ~~during an average hydrologic year~~ **(RECOMMENDATION 1)**; (ii) can supply coarse and fine sediment to the Class I channel; and (iii) may be able to supply wood of a size that would function as large wood for the Class I watercourse. Identification of Class II-L watercourse types shall be based on one or more of the office methods specified under 14 CCR § 916.9 [936.9, 956.9] subsection (g)(1)(A) and verified in the field by direct observation as ~~methods~~ specified under 14 CCR § 916.9 [936.9, 956.9], subsection (g)(1)(B). Class II-S watercourses are those classified as Class II watercourses pursuant to 14 CCR § 916.5 [936.5, 956.5], but do not meet the definition of a Class II-L watercourse.

(A) Office-based ~~approaches~~ methods to identify potential Class II-L watercourses:

1. Stream order: After classifying the watercourses in an area pursuant to 14 CCR § 916.5 [936.5, 956.5], map all Class II watercourses in the area of consideration on current 1:24,000 scale U.S. Geological Survey topographic maps and determine stream order following the

stream order method in 14 CCR § 895.1. Second order and third order Class II watercourses are potentially Class II-L watercourses.

2. "Blue Line" streams: Watercourses mapped with a blue or black line on current 1:24,000 scale U.S. Geological Survey topographic maps that are not Class I are inferred to be Class II-L watercourses.

3. Drainage area: A calculated drainage area for the ~~an ownership or~~ local region or comparable local area **(RECOMMENDATION 6)**, known to produce mid-late summer flow based on continuous streamflow monitoring data, past plan experience, or local knowledge extrapolated over a similar geomorphic region **(RECOMMENDATION 6)** ~~for an ownership or local region extrapolated over the ownership or local area~~ can indicate ~~a~~ potential Class II-L watercourses.

(B) ~~Field-based approaches to identify potential Class II-L:~~ Determination of Class II-L watercourses shall be verified in the field by direct ~~channel~~ observations of channel morphology including width and depth at bankfull stage, gradient, substrate, and flow regime, supplemented with ~~and~~ local experience ~~using one or more of the following approaches~~ or site-specific documentation. Class II-L watercourses may have one or more of the following ~~observable~~ characteristics **(RECOMMENDATION 3)**:

1. Potential for significant flow contribution to a Class I watercourse, ~~Determine by direct observation or by local knowledge of common mid-summer flow conditions if office mapped Class II-L watercourses contribute flow to a Class I watercourse~~ at least through approximately July 15th ~~following a year with at least average precipitation~~ **(RECOMMENDATION 1)**-. The presence of springs or seeps, and aquatic animal and plant life that require perennial or ~~near perennial~~ sustained subsurface flow may indicate a significant flow ~~regime~~ contribution.

2. ~~Observe channel characteristics such as channel width at bankfull stage, channel depth at bankfull stage, channel slope, mean entrenchment ratio, the presence of springs or seeps, and the presence of aquatic animal and plant life that require mid-summer flow.~~ Channel substrate

that includes coarse sediment, and evidence of a flow regime capable of transporting coarse sediment (gravel and small cobble ~~one~~ 0.6 to five ~~(1-5)~~ **(RECOMMENDATION 7)** inches in diameter or greater) to a Class I watercourse during peak flows.

3. ~~Use continuous streamflow monitoring data from headwater watercourses to determine the watershed drainage area necessary to initiate mid-summer streamflow for a given ecoregion and extrapolate this data to other headwater basins in that ecoregion.~~ Sufficient channel width and depth ~~at bankfull stage~~ during peak flows to allow transport of large wood, defined as >12 inches in diameter and six (6) feet in length, to receiving Class I waters. ~~, during peak flows~~ **(RECOMMENDATION 2).**

(C) Based on (A) and (B) above, make a determination if the portion of the Class II watercourse being evaluated meets the definition of a Class II-L watercourse in 14 CCR § 916.9 [936.9, 956.9], subsection (c)(4).

(D) Include documentation in the plan explaining how the Class II-L determination(s) were made within the plan area and why, if any, potential Class II-L watercourses identified in the "Office Based Method" were not given Class II-L status. **(RECOMMENDATION 4)** Photographs, detailed analysis of potential stream temperature effects on receiving Class I waters, and/or other documentation depicting Class II flow regime and/or channel characteristics may be submitted by the RPF to support determination.

(E) All Class II-L watercourses designated above shall incorporate requirements stated in 14 CCR § 916.9 [936.9, 956.9], (g)(2). ~~for a maximum distance of one thousand (1000) feet, or total length of Class II-L, whichever is less, measured from the confluence with a Class I watercourse~~ **(RECOMMENDATION 8)**

(2) Class II WLPZ widths and operational requirements: All Class II WLPZs shall be composed******

~~###~~

~~**(3) Class II watercourses in the Southern Subdistrict of the Coast Forest District:** In addition to all other Forest Practice Rules applicable to timber harvesting within the Southern Subdistrict of the Coast Forest District, the following rules apply within a Class II WLPZ. These requirements supersede any other requirements for Class II watercourses contained in 14 CCR § 916.9(g).~~

~~(A) Retain all trees within the Class II WLPZ that meet the following criteria:~~

~~1. all trees located within the channel zone;~~

~~2. all trees that have boles that overlap the edge of the channel zone; and~~

~~3. all trees with live roots permeating the bank or providing channel grade control, with the following exception:~~

~~(i) 1/3 of the stems of redwoods with live roots permeating the bank or providing channel grade control may be harvested.~~

~~(B) Where sufficient spacing exists prior to harvesting, retained redwood trees greater than or equal to 12 inches dbh shall not be spaced more than 25 feet apart.~~

~~(C) A minimum of 80% overstory canopy shall be maintained within the channel zone. If 80% overstory canopy is not present within the channel zone, the existing overstory canopy within the channel shall not be reduced.~~ **(RECOMMENDATION 5).**