

**Response to Comments**  
**on**  
**Proposed ORDER NO. R1-2016-0004**

Waste Discharge Requirements

For

Nonpoint Source Discharges and Other Controllable Water Quality Factors Related to  
Timber Harvesting and Associated Activities Conducted by Humboldt Redwood  
Company, LLC In the  
Upper Elk River Watershed

Humboldt County

Prepared by:  
North Coast Regional Water Quality Control Board  
April 7, 2016

**Procedure**

On December 4, 2015, the North Coast Regional Water Quality Control Board (Regional Water Board) issued a Notice of Public Hearing and Intent to Adopt a mitigated negative declaration for Draft Order No. R1-2016-0004, Waste Discharge Requirements for Nonpoint Source Discharges and Other Controllable Water Quality Factors Related to Timber Harvesting and Associated Activities Conducted by Humboldt Redwood Company, LLC in the Upper Elk River Watershed, Humboldt County (draft Order). The draft Order is informed in part by the *Upper Elk River: Technical Analysis for Sediment* (Technical Report), which is a comprehensive assessment of sediment conditions and associated beneficial uses in the Elk River Watershed. On November 18, 2015, prior to the official public notice, the Regional Water Board conducted a public workshop and a draft Order was made available for public review on the Regional Water Board's webpage.

The draft Order, mitigated negative declaration, and supporting documentation (i.e. Initial Study) were submitted to the State Clearinghouse for a 30 day CEQA review and assigned SCH# 2015122010. In addition, the Public Notice initiated the Regional Water Board's 45-day formal public comment period, which ended on January 18, 2016. However, as January 18, 2016 was a holiday, written comments were accepted through January 19, 2016. The notice of the draft Order was distributed to the Regional Water Board's Iyris list, two newspapers in the Region (Press Democrat, Eureka Times Standard) and was posted on the Regional Water Board's website.

The Public Notice stated that Regional Water Board would conduct a public hearing to consider adoption of the draft Order and mitigated negative declaration on March 10, 2016, at 8:30 a.m., in Humboldt County at the location to be announced in the Regional Water Board's agenda. Subsequently, the hearing date was changed to April 7, 2016 and on January 7, 2016, the Regional Water Board issued a supplemental Public Notice announcing the new hearing date.

On December 23, 2015, the Regional Water Board issued public notice to begin the public comment period for the draft Upper Elk River Sediment TMDL Action Plan, an amendment to the Basin Plan. The comment period closed on February 15, 2016. The public hearing to consider adoption of the draft TMDL Action Plan is also scheduled for April 7, 2016, in the Eureka City Hall.

On February 5<sup>th</sup>, 2016, Regional Water Board staff held a public workshop to update interested parties, answer questions, and allow for public dialogue on the draft TMDL Action Plan and related matters, including the draft Order.

### **Comments received during the December 4, 2015– January 18, 2016 Comment Period**

Kristi Wrigley, Elk River resident  
Jesse Noel, Elk River resident  
Justin Ly, National Marine Fisheries Service (NMFS)  
Matt Goldworthy, National Marine Fisheries Service  
Jedediah Parr, Elk River resident  
Jack Lewis, Hydrologic Statistician  
Joel Fonner, Elk River resident  
Scott and Susan Keele, Elk River residents  
Lisa O'Keefe, Elk River resident  
Chris Pasteris, Elk River resident  
Jerry Martien, Friends of Elk River  
Matthew Turner, Elk River resident  
Mike Miles, Humboldt Redwood Company (HRC)  
Nancy Sievert, Elk River resident  
Ralph Kraus, Elk River resident  
Rob DiPerna, Environmental Protection Information Center  
Wayne Whitlock, representing Humboldt Redwood and Green Diamond Resource Company  
Vivian Helliwell, Pacific Coast Federation of Fishermen's Associations and Institute for Fisheries Resources  
Joe Croteau, California Department of Fish and Wildlife (DFW)  
Ken Pimlott, California Department of Forestry and Fire Protection (CAL FIRE)

Substantive comments received during the comment period are summarized below, followed by Regional Water Board staff response. Where commenters have made similar comments, those comments are summarized and a single response presented. Revisions to the December 4, 2015 draft Order are reflected in the proposed Order that will be considered for adoption by the Regional Water Board on April 7, 2016, and are highlighted in a "redline-strikethrough" version. Original copies of all written comment letters are attached to this document.

### **Overview**

All commenters are generally in agreement with, or at least do not contest, the Technical Report's findings that high levels of fine sediment deposited in the impacted reach of Elk River over the past 20 years were largely the result of ground disturbance from past logging and associated activities in combination with other systemic factors such as channel and floodplain constraints, that these deposits have resulted in channel

aggradation, which continues to cause nuisance conditions for residents, including increased flooding magnitude and frequency and impaired domestic and agricultural water supplies. Commenters can be broadly categorized into two diametrically opposed groups based on their opinions regarding the potential for sediment production and discharge from continued logging and how much logging, if any, should be allowed under the Order.

Elk River residents (as well as two commenters associated with environmental advocacy organizations), who's properties and lives have been directly and profoundly adversely affected by elevated sediment loads are strongly opposed to any additional logging until beneficial uses in the impacted reach have been restored. Residents cite the abundance of both anecdotal evidence as well as analysis and conclusions from published reports to advocate for a complete moratorium on logging in the watershed.

In contrast, the two industrial timberland owners, HRC and Green Diamond Resource Company (Green Diamond), maintain that the restrictions on harvesting proposed in the draft Order are unnecessarily stringent. These commenters maintain that their current timber harvesting practices conducted pursuant to their Habitat Conservation Plans (HCP) and associated management plans implement appropriate harvest restrictions and Best Management Practices (BMPs), and no additional requirements for water quality can be supported.

Before addressing the substantive comments in detail, we must address and acknowledge the unique nature of past conflict in this watershed and how it influences the development of regulatory efforts now. Beginning in 1986 when the Maxxam Corporation acquired the Scotia Pacific Company, Salmon Creek Corporation and Pacific Lumber Company (collectively referred to as Palco) in a hostile takeover, timber harvest rates in Elk River and some other Humboldt County watersheds increased approximately ten-fold. Following over a decade of significantly increased logging and protracted litigation, significant downstream sediment impacts had occurred. Notable impacts include increased flood frequency, loss of domestic and agricultural water supplies, and threatened county infrastructure (i.e. roads and bridges), threatened private infrastructure (i.e. home, buildings, septic systems, and farm land). These impacts damaged property, the environment, and various relationships. The contentious and adversarial nature of the controversy surrounding the effects of the Maxxam logging era have not completely subsided and continue to color discussions regarding environmental regulations in the Elk River Watershed.

In 1999, the 7,472-acre Headwaters Forest Reserve was established after the decade-long grassroots effort to protect the world's last unprotected, intact, old-growth redwood forest ecosystem (costing over three million dollars in state and federal contributions). On January 18, 2007, Palco filed for Chapter 11 bankruptcy in Corpus Christi, Texas. On July 8, 2008, the bankruptcy court issued its Judgment and Order confirming a reorganization plan that consolidated the Scotia sawmill and approximately 210,000 acres of commercial timberlands operations to be managed by a new company, Humboldt Redwood Company, LLC, consistent with the sustainable forestry practices demonstrated by Mendocino Redwoods Company in Mendocino County. All Regional Water Board Orders originally

issued to Palco were amended by Order No. R1-2008-0100 to reflect HRC's ownership of the former Palco holdings.

In California, water quality regulation of discharges from nonpoint source land uses is no longer in significant controversy. (See e.g., *Pronsolino v. Nastri* (9th Cir. 2002) 291 F.3d 1123.) The California Supreme Court has upheld the Regional Water Board's independent authority and responsibility to administer water quality laws for logging activity. (See, *Pacific Lumber Company et al., v. State Water Resources Control Board* (2006) 37 Cal. 4th 921, 934.) The State of California successfully defended a \$700 million damages action brought by Palco in 2006 alleging that it breached the Headwaters Agreement by regulating timber operations to protect water quality. (*Avidity Partners LLC v. State of California* (2013) 221 Cal.App.4th 1180.)

The Regional Water Board and the Board of Forestry (and CAL FIRE) have made strides toward aligning the agencies' procedures and finding regulatory consistency in areas where the Forest Practice Rules (FPRs) adequately protect the beneficial uses of water. (See e.g. Order No. R1-2013-0005, General Waste Discharge Requirements for Discharges for Timber Operations on Non-Industrial Timber Management Plans (NTMPs) in the North Coast Region.) It is generally thought that water quality protection from timber harvesting activities in the North Coast Region is improving, in particular with respect to prevention of sediment discharges and increases in water temperature. This is due to improving regulations, such as more stringent FPRs (i.e. Anadromous Salmonid Protection Rules of 2010 and Road Rules of 2015) and Regional Water Board orders requiring inventories and treatment for existing sediment discharge sources, more state resources dedicated to timber regulation, and improved interagency collaboration. Improved water quality protection is also likely due to increasing awareness of existing water quality impairments from past activities and acceptance of management practices designed to reduce sediment and temperature impacts by state regulators, foresters, consultants, land owners, land managers, and timber operators.

The short historical description above is presented in an effort to provide some perspective to the proposed Order. We do not suggest that the situation in the Elk watershed is ideal, and we do not mean to minimize the impacts experienced by individuals who have gone through and experienced the evolution of events that began in the early 1990s. However, the tone of some comments can seem over-amplified and incongruent with the present situation. For example, Jesse Noelle describes the mitigated negative declaration as "heinous" and "sadistic." HRC claims that the TMDL and WDR are "draconian" and will "cripple" its economic viability. The intensity of feelings by parties to the long conflict in this watershed is understandable; however, this rhetoric can hinder a more productive dialogue. Statements that the Regional Water Board and its staff intend to inflict harm on people and property, or cripple the company are simply not credible. The proposed Order and TMDL Action Plan represent staffs' best approach for advancing water quality improvements forward in a reasonable and meaningful way. It is truly our intent to find the pathway forward working together, if not perfectly harmonized, in a cooperative and productive manner.

In the sections below, Regional Water Board staff summarize common issues, including opposing viewpoints on each issue, and then present a detailed discussion in our response. Some comments refer to very specific details and therefore are treated individually in our responses. Mike Miles from HRC submitted detailed comments, including a copy of the draft Order with comments and suggested edits and revisions in track changes. Many of his comments pertain to common issues discussed below. Where appropriate, suggested edits are incorporated in redline-strikeout text to the proposed Order.

**Note** - For the sake of clarity, the version of the Order released for public review on December 4, 2015 will be referred to as the draft Order. The revised version that is scheduled to be considered for adoption by the Regional Water Board on April 7, 2016 is referred to as the proposed Order.

## **Responses to Specific Issues**

### **1. Impaired Beneficial Uses**

Many residents wrote, and have provided oral testimony to the Regional Water Board, that they have been harmed by, and continue to suffer from, the impacts of elevated sediment deposition associated with logging activities.

**Response:** The Regional Water Board has recognized since as early as 1997 that elevated sediment loads associated with logging on the industrial timberlands in the Upper Elk River has resulted in impaired beneficial uses and nuisance conditions. Numerous beneficial use impairments have been documented in the Elk River Watershed. These impairments include impacts to domestic and agricultural water supplies and impacts to recreational use of the river and degradation or loss of aquatic habitat.

In addition to the beneficial use impairments, nuisance flooding is another concern in the watershed. California Water Code section 13050 defines "nuisance" as anything which meets all of the following requirements:

1. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
2. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
3. Occurs during, or as a result of, the treatment or disposal of waste.

Discharges of sediment and small organic debris to watercourses have aggraded stream channels in the low gradient reaches of the Elk River, significantly reducing channel capacity. Overbank floods now occur at a frequency of four times per year on the North Fork Elk River (Regional Water Board 2005). Therefore, there is flooding of roads, fields, fences, and homes at intervals that are much more frequent than occurred historically. This affects property values and the livelihoods of those who live in the community. The fine sediment deposits in the impacted reach of the Upper Elk River Watershed have become anchored in place by the encroachment of vegetation, further slowing winter floodwaters, and causing flows to spill over their banks at elevated frequency and magnitude.

Potentially serious impacts to health and safety are associated with these flood events, as residents attempt to cross floodwaters, emergency vehicles are limited from accessing homes, and power can be lost to people dependent on health-support machinery and other people and services for care. Additionally health impacts from potentially contaminated floodwater entering homes include damage to walls, flooring, and furniture and the potential for growth of harmful molds in homes.

Residents of Upper Elk River, including those along the North Fork, South Fork, and Mainstem, have historically relied on surface water intakes in the river for domestic and agricultural water supplies. The majority of water users in Upper Elk River have relied on an instream pump intake system, usually placed in a relatively deep and stable pool. Specifically, the North Fork has 12 surface water domestic supplies, the South Fork has approximately 6-7 impacted surface water domestic supplies, and the mainstem has at least 8 documented impacted domestic surface water or shallow well water supplies. Many of these sources are also used for localized agriculture for gardens, crops, or small livestock operations. There are also two livestock operations further down in the impacted reach.

Elevated turbidity and fine sediment discharges have limited withdrawal windows between storms and increased frequency of maintenance and replacement of pumps, hot water heaters, and water treatment facilities, as well as damaged agricultural spray equipment and surface water supply intakes.

Over the past 15 or more years, the Regional Water Board has dedicated extensive staff resources working towards addressing the beneficial use impairments and nuisance flooding that has caused real harm to affected residents. Regional Water Board staff efforts have encompassed a wide range of actions, including working to reduce sediment production from timberlands by improving landuse controls and requiring inventories and cleanup and abatement orders to address controllable sediment discharge orders, as well as evaluating potential actions to recover the downstream impacted reach (e.g. Elk River Recovery Assessment). Regional Water Board staff review all proposed THPs in the Elk River Watershed and conduct frequent field inspections, before, during, and after timber operations. Working with our partners, Regional Water Board staff have most recently initiated the Elk River Watershed Stewardship Program to serve as an umbrella in support of beneficial use enhancement, prevention of nuisance, and a trajectory of watershed recovery. Attached to this document is a summary and timeline of important milestones and Regional Water Board actions taken to address beneficial use impairment and nuisance flooding (Attachment A).

## **2. Continued Logging Operations Cause or Contribute to Existing Impairments**

Residents maintain that continued logging as permitted under the draft Order will perpetuate impairments of beneficial uses, therefore, logging should be halted completely or strictly curtailed until the river is restored to health. Commenters state that ongoing beneficial use impairment and continued aggradation in the impacted reach demonstrate that current rates and methods of timber harvesting continue to cause elevated sediment production and flooding.

HRC and Green Diamond acknowledge aggradation in the impacted reach, but question the extent that it is due to elevated sediment transport from current timber operations on upstream timberlands. They maintain that HRC's aquatic trends monitoring data show that conditions upstream of the impacted reach have been stable for the past decade, and claim that there is no evidence that current timber harvesting practices are contributing to downstream sediment impairment. They argue that continued aggradation in the impacted reach may be due to sediment routing or other downstream geomorphic factors, and that the draft Order relies too heavily on Upper Elk River sediment control and not enough on downstream restoration.

**Response:** Numerous studies have been conducted and extensive monitoring data exists from throughout the Elk River Watershed. Much of the data has been collected by HRC pursuant to monitoring requirements from the Regional Water Board and other state and federal regulatory agencies. Additional data has been collected by agencies such as the Regional Water Board, by consultants, such as Pacific Watershed Associates, and by private organizations such as Salmon Forever. As a result, much is known about anthropogenic sediment sources and there is general agreement regarding many aspects of the current watershed conditions.

Most parties agree that sediment delivered from the upper portions of the watershed overwhelms the transport capacity of the impacted reach, resulting in ongoing channel aggradation in the impacted reach for the past approximately twenty years. This has resulted in reduced channel capacity and increased flooding magnitude and frequency. These effects are measurable and not in dispute. Opinions diverge as how much the aggradation is due to elevated sediment flux into, or reduced transport capacity out of, the impacted reach, and how much current management activities is contributing to sediment loading.

The question regarding how much current logging as practiced by the two industrial timberland owners in the Elk River Watershed is contributing to sediment impairment or preventing recovery in the impacted reach is guiding the Regional Water Board's actions with respect to adopting a revised Order. The draft WDR acknowledges other contributing factors associated with the downstream impairments. (See draft WDR at 3, finding 7 ["[i]n addition to elevated sediment loads, hydromodification from channel stabilization, removal of large woody material, dredging, and channel constrictions in lower portions of the watershed, such as bridges and roads, have diminished the ability of the river to assimilate increased sediment loads".]) It also acknowledges that a significant portion of in-stream sources (as defined in the Technical Report) are likely to be mobilized and transported to the impacted reach over time, regardless of whether or not timber operations are conducted. (See Proposed Order at p. 8, finding 27.) That said, the draft Order still must include stringent controls necessary to prevent exacerbation of these sources from continuing timber harvesting activities.

Both the Technical Report and HRC's watershed analysis recognize several sediment source categories associated with timber harvest and roads. Management related sources common to both reports include landslides, roads, steep streamside slopes, and near-, or in-channel sources. HRC's analysis broke sediment production estimates into two time

periods, 1988-2000 and 2001-2011. The Technical Report presents estimates from seven different time periods going back to 1955, the most recent being 2004-2011. Sediment production estimates presented in both of these reports show high rates associated with management related sources following the mid-1980s and decreasing in subsequent periods. The Technical Report shows two periods of high sediment production, 1955-1966 and 1988-1997, followed by a gradual decline over the subsequent 10 to 20 years. Both periods of high sediment production coincide with periods of high rates of logging activity. In addition to high levels of logging activity, logging practices during those periods are thought to have resulted in greater disturbance than current logging as practiced by HRC. This is due to development of more protective regulations, including Forest Practice Rules, HRC's Habitat Conservation Plan (HCP), and Regional Water Board WDRs, as well as greater awareness by foresters and operators of the need to protect sensitive watershed resources.

The timber harvest history and associated impacts in the Elk River Watershed are not unique. Throughout the north coast, rates of logging activity have historically fluctuated episodically due to historic, social, economic, and forest stand development cycles. Spikes in sediment production have historically been observed during periods of high logging rates, followed by gradual decreases as logging activity decreases (Lewis, et al, 2003). Elevated sediment production is associated with various types of watershed disturbance, such as road and landing construction and use, log skidding, and canopy removal, often followed by burning. Historic logging practices, particularly during the post WWII era, left behind severely disrupted landscapes, with dense skid trail networks on steep slopes, denuded hillsides, roads in and adjacent to streams, large cut slopes, and thick wedges of sidecast materials. Large tracts of land left in such recently disturbed conditions can be seen clearly in aerial photographs from throughout the North Coast from the mid 20<sup>th</sup> century. To this day, evidence of this disturbance is ubiquitous on timberlands. Such widely disturbed landscapes can produce large sediment pulses during storm events in the period following logging, gradually tapering off as vegetation regrows and disrupted areas heal. However, due to the severity of disturbance, scars remain on the landscape, including old skid trail networks, landslides, and streams that have been diverted, buried in debris, filled in by roads and landings, cleared of wood, and used to skid logs. Reid (2010) found expansion of gullies networks in disturbed headwater channels following second cycle logging. These scars render landscapes sensitive to reactivation by subsequent disturbance for many decades. Stream channels in Elk River, which have been widely disturbed and are underlain by highly erosive geologic units, are particularly vulnerable to such reactivation.

While it is understood and acknowledged that logging practices have improved, even with implementation of current management practices and restrictions, ongoing timber harvesting and associated activities will result in some sediment discharge, further exacerbating the already impaired condition. Therefore, the new Order must control all controllable sources to the maximum extent possible.

### **3. Additional Water Quality Protections**

HRC objects to several additional water quality measures in the draft WDR that are more stringent than what is proposed in its Report of Waste Discharge (ROWD), and argue that

the Regional Water Board lacks evidence to support the necessity for these additional measures. HRC states that additional water quality measures ignore the successes of the past 10 years and the basis for many significant regulatory approvals, which all document major improvements in Elk River Watershed. Three comment letters were received by state and federal wildlife agencies, CAL FIRE, California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Service (NMFS). These agencies are signatory to HRC's HCP and are generally supportive of HRC's current practices. Their letters state that the Regional Water Board has not provided sufficient evidence to warrant some of the increased protection measures and restrictions contained in the draft Order.

**Response:** As stated in the draft WDR, HRC ownership in the Elk River Watershed is covered by a multi-species state and federal Habitat Conservation Plan (HCP) approved in 1999. The HCP implements state and federal Incidental Take Permits (ITP) issued for aquatic species including Chinook salmon, Coho salmon, steelhead trout, southern torrent salamander, tailed-frog, red-legged frog, foothill yellow-legged frog, and the northwestern pond turtle in conformance with the state and federal Endangered Species Acts. The HCP, and Forest Practice Rules for that matter, impose prescriptions and other requirements helpful for water quality protection needs; however, endangered species act protections may not ensure full compliance with federal and state water quality laws. As explained below, the Regional Water Board can, and does rely on existing regulatory measures by other agencies to the extent that it can, in an effort to make the process more efficient.

That said, the Regional Water Board has independent authority and responsibility to administer water quality laws, which protect a broader range of beneficial uses than fisheries and other aquatic species. The California Supreme Court has expressly rejected the argument that the Z'berg-Nejedly Forest Practice Act of 1973 provides the exclusive, "one stop" regulatory process for proposed logging activity. (See, *Pacific Lumber Company et al., v. State Water Resources Control Board* (2006) 37 Cal. 4th 921, 934 [relying on the Forest Practice Act's savings clause, which provides: "No provision of this chapter or any ruling, requirement, or policy of the [Board of Forestry] is a limitation on...the power of any state agency in the enforcement or administration of any provision of law which it is specifically authorized or required to enforce or administer".]) Water quality law differs significantly from the authority vested in wildlife agencies concerning endangered species and streambed alterations, and is in addition to the authority vested in CAL FIRE for timber harvest review. The Elk River is unusual in that human uses are the focus of the impaired beneficial uses.

On September 22, 2015, HRC submitted to the Regional Water Board a ROWD, which describes its overall management plan in the Elk River Watershed. Regional Water Board staff have reviewed the ROWD and on October 21, 2015, sent HRC a letter acknowledging that the ROWD is complete. While the ROWD has been deemed complete, it is not considered fully adequate to meet all water quality requirements associated with Elk River. The draft WDR relies on and incorporates the majority of measures proposed in HRC's ROWD for the following activities:

- Forest management;

- Riparian management on Class I and II watercourses (see specific discussion below);
- Road management;
- Landslide prevention;
- Control of sediment from road and off-road sites; and
- Water quality monitoring.

HRC still objects to any additional water quality protections included in the draft WDR, specifically the 2% harvest rate limit in all sub-watersheds (10 year rolling average), expansion of and changes to existing riparian management zone (RMZ) measures, wet weather-related prescriptions, and the feasibility study for control of in-channel sediment sources. We will address each in turn.

A. 2% harvest rate limit in sub-watersheds (10 year rolling average):

Section I.A.3 of the draft WDR specifies that the average annual harvest rate in any subwatershed in Table 4.3 of the ROWD shall not exceed 2% equivalent clearcut acres per year during any 10 year period. This utilizes HRC's proposed harvest schedule but includes an upper limit as a margin of safety. HRC objects to this provision.

Current logging practices as proposed in HRC's ROWD are designed to avoid or minimize ground disturbance from roads and skid trails, specify design criteria to minimize road related sediment discharge, provide vegetated stream buffers to filter sediment, prevent or limit timber operations on vulnerable hillslopes, and avoid direct disturbance of streams. Standard BMPs such as these can be largely effective in minimizing sediment discharge from discrete locations associated with timber operations. However, significant questions remain regarding the degree that BMPs can be effective in preventing sediment discharge on such a highly disturbed and sensitive landscape as the Elk River Watershed. Some level of watershed impact from harvesting due to the hydrologic effects of tree removal may be unavoidable, in spite of implementation of strict BMPs (Klein, et al, 2012).

Of particular concern in the Elk River Watershed is the potential for increased peak flow from canopy removal (Lewis, et al, 2001). The Technical Report identified in-channel sources, such as headward channel incision, bank erosion, and streamside landslides, as the most significant anthropogenic sediment sources in the Upper Elk River. These in-channel sediment sources are perhaps most sensitive to increased peak flows. Much of HRC's timberlands in the Elk River Watershed are underlain by two relatively young, erodible geologic units; the Quaternary Hookton Formation and Wildcat Group. These bedrock units are highly susceptible to landsliding and other erosional process that produce abundant fine sediment. A characteristic of soils derived from these two geologic units is the tendency for low order streams to form large soil pipes. Streams can flow partially subsurface for much of their length through these pipes. As soil pipes develop and erode, portions of them may collapse, daylighting stream segments. The process of collapse of soil pipes is thought to have been greatly accelerated by past logging disturbance throughout the watershed. Prior to

implementation of current regulations, streams were directly impacted by heavy equipment and log skidding. Increased peak flows from canopy removal may have also exacerbated the process of destabilizing stream channels (Reid and Lewis, 2009). The channel initiation study conducted by Regional Water Board<sup>1</sup> staff found that activities in stream channels and swales have resulted in collapse of soil pipes, headward channel incision, and expansion of the stream channel network, including sediment mobilization through incision and an increase in erosional power associated with increased peak flows.

Tree removal may also result in increased rates of shallow landslides on vulnerable slopes due to decreases in root strength and increased soil moisture (Reid, 2012). Tree roots can enhance the strength of shallow soils, increasing the soil's ability to resist failure. When trees are harvested, their roots gradually decay, reducing the reinforcement they provide and increasing the potential for shallow landslides. The loss of root strength gradually increases over a period of several years, with the critical period of maximum loss occurring approximately 5 to 15 years after harvesting. Loss of root strength varies with species and intensity of harvest. Interception, evaporation, and evapotranspiration of rainfall by forest canopy can reduce the volume of precipitation that infiltrates and remains in soils. Harvesting trees can therefore result in increased soil moisture and decreased root reinforcement, which can contribute to increased landsliding.

As stated above, standard BMPs are not designed, nor are likely to be effective, in minimizing the potential for increased peak flows to mobilize in-channel sediment sources. Stream buffers may attenuate the effects of increased runoff somewhat, but retention of canopy throughout a drainage basin is the primary management control on peak flow effects. As such, harvest rate limits, including temporary prohibitions on the most sensitive areas, are an essential tool to address peak flow effects and sediment discharges.

Harvest rate limitations have been in effect in the Elk River Watershed for almost two decades, beginning with CAL FIRE's 1998 moratorium on new THPs, followed by their limit of 600 acres per year based on their peak flow analysis in 2002, and finally as requirements in the Regional Water Board WDRs in 2006. Harvest limits in the 2006 permits were based on two scientific models designed to limit peak flow increases and harvest related landslides. WDRs establishing harvest limits based on those two models were also adopted for Freshwater Creek at the same time as for Elk River. The WDRs for Elk River and Freshwater Creek were adopted when the previous landowner widely utilized clearcut silviculture. HRC, which acquired the property in 2008, utilizes unevenaged management. It is generally thought that partial harvesting under uneven aged silviculture has a lower potential to result in adverse impacts to water quality than more intensive evenaged harvesting methods such as clearcutting. WDRs for Bear and Jordan Creeks adopted by the Regional Water Board in 2011 and 2014, respectively,

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<sup>1</sup> March 4, 2012. *Peer Review Draft Staff Report to Support the Technical Sediment TMDL for the Upper Elk River, Appendix 4-C: Management-Related Channel Initiation.*

established harvest rates of approximately 1.7% annual equivalent clearcut acres<sup>2</sup>, as proposed by HRC.

Findings 30 through 37 of the December 4, 2015 draft Order provide a discussion of the Regional Water Board's approach to developing specific harvest rate limitations. The findings discuss various studies conducted, factors that have been considered, and acknowledge the limitations in quantifying specific thresholds. Harvest rate limitations in the proposed Order rely in large part on harvest projections from HRC's ROWD. In spite of many studies and models, the current state of the science provides no rigorous methodology to derive specific thresholds. However, in the Elk River Watershed where severe cumulative watershed effects from logging persist, all available tools must be considered and utilized. Harvest rates should be established and expressed in a clear and enforceable manner. Lacking a methodology to calculate a specific harvest rate, a threshold must be established based on existing studies, precedents, professional judgment, and experience. Harvest rates proposed in HRC's ROWD and as required in the proposed Order are lower than allowed under the 2006 Order. But while *watershed-wide* harvest rates proposed by HRC are deemed acceptable by Regional Water Board staff, peak flow effects on low order stream channels are localized at the subwatershed or catchment scale. The proposed WDR requires that the rate of harvest in any subwatershed not exceed 2% equivalent clearcut acres per year averaged over any 10 year period in order to protect against the potential impacts of concentrating harvesting in any individual subbasin over a given time period.

B. Expansion of and changes to existing Riparian Management Zone protection measures:

Section I.B of the draft Order incorporates Elk River/Salmon Creek Watershed Analysis (ERSC WA) prescriptions for riparian protection as minimum protection standards. Additional protection measures in the draft Order include avoidance of tractor crossings and retention of trees in unchanneled swales; implementation of highest feasible level of erosion control on all Riparian Management Zone (RMZ) road segment, landings, and skid trails; and requirements for post-harvest tree retention to protect slope stability and promote and maintain robust riparian stands in sensitive areas up to 300 feet on either side of the channel for Class I watercourse, 200 feet on either side of the channel for Class II watercourses, and 100 feet on either side of the channel for Class III watercourses. HRC objects to any expansion of, or changes to, its existing RMZ protection measures contained in its ROWD. Comment letters from three HCP signatory agencies, CAL FIRE, DFW, and NMFS, maintain that there is no evidence that RMZ prescriptions based on the ERSC WA are not adequate to reduce sediment delivery or increase large wood. However, other commenters considered RMZ requirements from the draft Order to be either the minimum needed to protect water quality, or inadequate.

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<sup>2</sup> Equivalent clearcut area is a widely used methodology developed by the USFS to account for the relative impacts of different types of silvicultural treatment. It assigns a weighting factor of one to clearcutting and a value less than one for partial harvesting silvicultural treatments. The weighting factor for a silvicultural treatment is multiplied by total area treated under each silviculture to arrive at a normalized disturbance calculation. Therefore, 100 acres of selection harvest, which is typically assigned a ECA factor of 0.5, would be counted as 50 equivalent clearcut acres.

The RMZ proposed in the draft Order were based on hillslope water quality indicators from the draft TMDL Action Plan, which are designed to inform timber WDRs and can be incorporated into permits, as appropriate. TMDL hillslope targets describe the characteristics of riparian zones within 300 feet of Class I and II watercourses and 150 feet of Class III watercourses as improvement in the quality/health of the riparian stand so as to promote 1) delivery of wood to channels, 2) slope stability, and 3) ground cover. Upon further review, Regional Water Board staff agrees that HRC's RMZ prescriptions for Class I watercourses, when applied in conjunction with selection harvesting methods beyond the distances specified in the TMDL Action Plan, are adequate to prevent increased sediment production and conform to the hillslope target characteristics for riparian zones. Accordingly, we have removed the draft requirements that RMZs extend from 150 feet to 300 feet on either side of the channel for Class I watercourses. However, consistent with the Independent Science Review Panel report and other lines of evidence discussed below, the protection proposed for Class II and Class III watercourses in the draft Order should remain in place. The draft Order specifies no harvesting within 30 feet of Class II and 20 feet of Class III watercourses and retention of 150 square feet of basal area per acres out to 200 feet for Class II and 100 feet on Class III. Tree retention in these zone is to protect streamside slopes from impacts to slope stability and ground disturbance and minimize hydrologic effects on streams from canopy removal. It has been suggested, and staff agrees, that it is more appropriate to express tree retention as percent canopy because canopy removal is more directly linked to peak flow increases. Section I.B.2-3, a-c has been revised to replace basal area tree retention provisions to minimum post-harvest conifer canopy retention of 60% in Class II and 70% in Class III watercourses.

Riparian buffers are one of the primary management measures for achieving water quality protection from the impacts of timber harvesting. An extensive body of scientific literature exists describing the ecological functions of riparian zones, include those directly related to sediment and associated impacts to the beneficial uses of water. A thorough review with citations of relevant literature is presented in The Scientific Literature Review of Forest Management Effects on Riparian Functions for Anadromous Salmonids (<http://www.soundwatershed.com/BOF.htm>) prepared by Sound Watershed Consulting for the California Board of Forestry in 2008 in preparation for revisions to Forest Practice Rules for protection of anadromous salmonids. While there is a strong conceptual understanding of the interaction between riparian zones and hillslope sediment and hydrologic processes and the effect that management activities can have on them, the scientific literature can provide no definitive guidelines establishing specific buffer widths or minimum tree retention.

In August 2002, the Regional Water Board convened an Independent Scientific Review Panel (ISRP Panel). Its objective was to strengthen the scientific basis for its decision-making for protecting and restoring the sediment-impaired beneficial uses of waters in the Elk River and Freshwater, Bear, Jordan, and Stitz Creek watersheds in Humboldt County, California. The Panel issued two reports, which included several findings that were used as the basis to establish specific requirements of the 2006 permits<sup>3</sup>. Among

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<sup>3</sup> The 2006 permits were largely focused on rate of harvest provisions and did not incorporate Class III riparian

the findings and recommendations was the recognition that most sediment enters the fluvial system from headwater streams, and therefore, within the framework of water quality protection, the largest buffers should be on Class II and Class III watercourses. The Panel also found that the 10 foot no-harvest band on Class III watercourses is likely to be of no value for the purposes of water quality protection. The additional protections in the proposed Order are supportable and necessary water quality protections.

C. Wet weather-related prescriptions:

Finding 56 of the proposed Order states, "Conducting timber operations during wet weather increases the potential for sediment production and discharge from roads, landing, and skid trails. Use of trucks and heavy equipment during saturated soil conditions can result in soil compaction, create ruts which effect road drainage, and increase production of fine sediment. Typically the most effective way to prevent impacts from operations during saturated soil conditions is to avoid operations during the period of the year when rain is likely to occur. This allows for timely implementation of seasonal erosion control, and the completion and stabilization of construction and reconstruction of roads, landings, skid trails and watercourse crossings. In the North Coast, over 90% of average annual precipitation falls between October 15<sup>th</sup> and May 1<sup>st</sup>."

HRC requested that the draft WDR be revised to conform with the seasonal wet weather restrictions proposed in its ROWD, including cessation of some activities not based on a set calendar date but rather based on actual rainfall events. We agree that cessation of operations should occur once seasonal precipitation totals reach a threshold that could result in saturated soil conditions. In order to provide a quantifiable and objective criteria for cessation of operation, we have revised section I.E.2, Wet Weather Requirements, to specify that all timber operations, including timber falling, timber yarding, and hauling (including logs, heavy equipment and/or rock), shall cease once there is 4 inches of accumulated precipitation in any water year (October 1–September 30) after October 1<sup>st</sup> as measured at the National Weather Service Woodley Island Station in Eureka. Once that condition is triggered, timber operations may not resume until May 1<sup>st</sup> of the following year at the earliest, subject to wet weather restrictions applicable throughout the year as specified in the HCP. Allowing timber harvesting activities throughout the entire winter period, as requested by HRC, poses an unacceptable level of risk of elevated surface erosion and increased turbidity due to land disturbance activities and road use during repeated cycles of drying and reuse.

Several studies have shown that wet weather timber operations, particularly hauling, increases the potential for generating fine sediment that can be discharged to streams (Reid and Dunne, 1984, ODOF, 2003). The action of repeated trips by log trucks over a road can break down coarse aggregates, resulting in generation of fine particles. Forces exerted on the surface by vehicle traffic causes movement of fine particles to the surface. CAL FIRE staff prepared a summary of information on wet weather log hauling

and impacts to water quality that evaluated several studies to identify factors that contribute to turbidity when roads are used during wet periods. Their study found that in most cases, increases in turbidity were associated with three day precipitation totals, durability, size distribution, and depth of surfacing material, length of ditch line draining to channel, and traffic levels. We recognize that HRC has rocked mainline and some secondary haul roads and has conducted winter period operations, including hauling for many years. However, rocking roads cannot in all cases be guaranteed to prevent generation of fine sediment from road surfaces. This is particularly true in watersheds with high precipitation rates and soft substrates that lose strength when saturated. Even roads that are well rocked at the beginning of the rainy season may break down and form ruts and wet spots after repeated use and storm events throughout the winter season. In addition, timber harvest activities that can result in significant ground disturbance, such as yarding and log decking and loading on landings, are typically conducted on non-rocked areas. The wet weather use restrictions in the proposed Order are necessary to implement TMDL load allocations and to protect water quality.

D. Feasibility study for control of in-channel sediment sources:

The draft Order requires that HRC conduct a feasibility study to evaluate potential methods to control, trap, or meter sediment from in-channel sources in the Upper Elk River before such sediment can be transported to the impacted reach. The feasibility study must identify any potential methods to reduce transport of sediment from tributaries in the Upper Elk River to the impacted reach that may include design and implementation of small scale pilot projects. If the pilot projects demonstrate the success of methods to reduce sediment discharge from in-channel sources, HRC must develop a plan and schedule to implement these methods throughout the Upper Elk River.

HRC objects to this requirement and believes such a study would be more appropriately addressed through the Elk River Recovery Assessment Pilot Project Program and/or the Watershed Stewardship Program. HRC argues that pre-existing instream sediment sources including stored sediment is in no way associated with the activities which it seeks coverage for under the Order. HRC also appears concerned about the practicality of attempting to mitigate in-channel stored sediment.

The feasibility study requirement is based on the recognition from both the Technical Report and HRC's watershed analysis that significant sediment sources are present both within and adjacent to stream channels throughout the headwater tributaries of the Elk River. As discussed elsewhere in this document, headwater streams destabilized from past logging activities will likely continue to adjust and discharge sediment for many years. In developing the draft Order, the Regional Water Board has considered a range of options for addressing legacy sediment impacts, including naming current timberland owners as responsible parties for excess sediment stored in the impacted reach and issuing cleanup and abatement orders, mitigation banking that would require timberland owners to fund offsetting mitigations to remove downstream sediment based on sediment discharge from timber operations, to tying allowable discharges

associated with harvest rates to progress on downstream remediation. Ultimately, the Regional Water Board in coordination with its partners has begun development of the Watershed Stewardship Program, a participatory program that engages community members, residents, scientists, land managers, and regulatory agencies in developing a collaborative planning process to address recovery of downstream beneficial uses and abatement of nuisance conditions. HRC has indicated its commitment to participate in the Watershed Stewardship Program and has provided funding for the initial Program development. As one of the largest landowners in the watershed, and one that may be considered as having assumed responsibility for at least a portion of the downstream impairment, its participation is critical and appreciated.

As the WDR is a component of a larger watershed restoration plan (the TMDL Action Plan), it is essential that efforts be made to explore all feasible methods to minimize the sediment loads transported to the impacted reach. We recognize that due to the tectonic setting, underlying geology, and high annual precipitation, natural erosion rates in Elk River are high, and strongly episodic. Thus, we have proposed a strategy that includes management practices designed to prevent creation of new sediment sources combined with a systematic approach to identifying and treating existing controllable sediment sources. The latter approach is widely utilized in timberlands throughout the state under Regional Water Board erosion control plan requirements and FPRs requiring identification and treatment of significant existing or potential sediment erosion sites. The feasibility study simply applies the inventory and treatment approach to riparian zones and encourages HRC to consider development, implementation, and performance assessment of innovative methods. Well accepted methods already exist that can significantly improve a streams capacity to store and distribute sediment, such as wood loading. Regional Water Board staff recognize the challenge of capturing sediment that has already entered the fluvial system as well as the sensitivity of the landscape and the need to ensure that any engineered solutions do not cause more harm than good. Therefore, the feasibility study will necessarily follow an adaptive management framework.

Considering current watershed conditions following over 150 years of forest management, it is likely that sediment entrained in the fluvial system, or in quasi-stable near-stream locations with a high potential to discharge during future storm events, regardless of whether additional logging takes place, will continue to be transported to the impacted reach. While BMPs are robust, any timber harvest activities, particularly additional canopy removal, have the potential to result in additional sediment discharge. HRC's future logging activities cannot be viewed in isolation of past activities and the condition of the receiving water of its discharges. The draft Order addresses existing and new discharges, while recognizing that the ability to control instream sediment may be constrained. The whole point of a feasibility study is to determine to what extent, if any, these sediment contributions can be controlled. We believe that the feasibility study is a reasonable approach to this problem. See also the discussion about the burden of remediation at Issue 7.

#### **4. Water Code section 13360**

HRC objects to any additional water quality protections that are inconsistent with its ROWD and argues that these will violate Water Code section 13360, which provides that no waste discharge requirement may specify “the design, location, type of construction, or particular manner in which compliance may be had” with a requirement, order, or decree. Citing *Tahoe-Sierra Preservation Council v. State Water Resources Control Board* (1989) 2010 Cal. App. 3d 1421, HRC maintains that Water Code section 13360 “acts as a shield against unwarranted interference with the ingenuity of the party subject to a waste discharge requirement.” HRC states that it has “crafted a proposal that results in a net reduction of sediment discharges over current conditions” that “reflects exactly the kind of ingenuity [s]ection 13360 was designed to protect.”

**Response:** Section 13360 allows the Regional Board to regulate discharges of waste fully, so long as it does not tell the discharger precisely how to meet the established limits. Section 13360 is not violated if there is only one way in which the discharger can comply. (*Pacific Water Conditioning Association v. City Council of Riverside* (1977) 73 Cal.App.3d 546.) Where lack of available alternatives is a constraint imposed by present technology and the law of nature, rather than the Board specifying a particular manner of compliance, there is no violation of Water Code section 13360. (*Tahoe-Sierra Preservation Council v. State Water Resources Control Bd.*, *supra*, at p. 1438.)

As explained above, the submitted ROWD is not fully protective of water quality in light of the existing impaired condition of the receiving waters. While BMPs are robust, any timber harvest activities, particularly additional canopy removal, have the potential to result in additional sediment discharge.

HRC’s “net reduction” strategy is flawed for several reasons. First, it is not appropriate to subtract sediment discharges from existing sediment sources on the property that were caused by past timber operations. A landowner is responsible for continuing discharges occurring on their property. Second, the prevention of future sediment discharges does not make up or somehow offset new discharges. Ultimately the discharges and potential discharges cannot be viewed as a zero sum game. Rather, a landowner is responsible for continuing discharges on their property as well any newly-proposed or change in an existing discharge.

The Regional Board has broad discretion to choose a reasonable method in calculating a TMDL, which it has defined here as zero. This is essentially a receiving water limitation to not cause or contribute to exceedances of water quality objectives, unreasonably affect beneficial uses, or cause or contribute to a condition of pollution or nuisance. The draft Order articulates a balance of provisions designed to meet these requirements. A term has been added to the draft Order that provides an opportunity for HRC to submit an alternate proposal that is equally or more stringent than the proposed provisions. But in the absence of an adequate proposal, the draft WDR water quality protections are not in violation of Water Code section 13360.

## 5. How Zero Load Allocation relates to Permit Provisions

One commenter asked what is meant by zero discharge. Another states that there is a disconnect between zero assimilative capacity, zero load allocations and provisions of the draft Order.

**Response** – TMDLs must be established at levels necessary to attain and maintain water quality standards. A TMDL is the sum of individual waste load allocations (WLA) for point sources and load allocations (LA) for nonpoint sources and natural background. (40 CFR 130.2 (i).) Loading capacity is the greatest amount of loading that a waterbody can receive without violating water quality standards. (40 CFR 130.2(f).) A LA is the portion of receiving water's loading capacity that is attributed either to nonpoint source pollution or to natural background sources. Wherever possible, natural and nonpoint source loads should be distinguished. (40 C.F.R. § 130.2(g).)

The capacity of the Upper Elk River for sediment is limited by the ongoing aggradation in the impacted reach and resulting nuisance conditions and compromised beneficial uses. The loading capacity of the impacted reach for additional sediment is defined as zero until its capacity can be expanded through sediment remediation and channel restoration, nuisance conditions are abated, and beneficial uses are supported. In the Upper Elk River Watershed, all the land use-related sediment delivered to the stream channel is attributed to nonpoint source pollution and natural background. Due to the lack of assimilative capacity in the receiving water reach, the nonpoint source load allocation is defined as zero.

Unlike a WLA that must be translated into a National Pollution Discharge Elimination System (NPDES) permit as an effluent limit, the Board has more discretion in how it chooses to implement the LA. A LA is not independently enforceable and must be applied in the statutory context of the implementation mechanism, here Water Code section 13263 and WDRs. When water quality is already degraded, it may take time to achieve water quality objectives and support beneficial uses, and immediate compliance may not be possible, even with complete cessation of a discharging activity. (See generally Nonpoint Source Policy at 13.) That said, WDRs must include requirements designed to show measurable progress toward improving water quality over the short term and achieving water quality objectives in a meaningful timeframe. Pursuant to Water Code section 13263, the Regional Water Board shall prescribe requirements as to the nature of any proposed or existing discharge with relation to the receiving water conditions. Requirements shall implement any relevant Basin Plan requirements (including a TMDL Action Plan) and take into consideration beneficial uses of water, relevant water quality objectives, and other relevant factors. WDRs can prohibit the discharge of waste or certain types of waste, either under specific conditions or in specified areas. (Wat. Code, § 13243.) All requirements shall be reviewed periodically.

The draft WDR approaches the zero LA by proposing robust BMPs, additional riparian zone and wet weather protections, and harvest rate restrictions based on relative risk of subwatersheds. It attempts to balance stringent requirements in recognition of the lack of precision in measuring various sediment inputs. It also takes into account data showing that control of upstream sediment cannot singularly result in attainment of water quality standards, and more action is needed as detailed in the Upper Elk River TMDL Action Plan.

Staff consider the specific requirements established in the proposed Order to be a reasonable and appropriate approach.

All the sediment delivered to the stream channels in the Upper Elk River Watershed is attributed to management-related nonpoint source pollution and natural background. Due to the lack of sediment loading capacity in the impacted reaches, the nonpoint source load allocation is defined as zero. This approach incorporates a conservative, implicit margin of safety and includes seasonal variation of sediment production through estimating sediment loads on an annual time step. The zero load allocation is necessarily conceptual since, using current technology and techniques, no amount of land use restriction can physically result in zero loading of non-point source sediment (i.e., the control of all natural and anthropogenic sediment delivery from the tributary system). This regulatory loading capacity will guide the program of implementation and will be maintained until the sediment loading capacity of the impacted reaches has been expanded. Once the loading capacity has been expanded, the Regional Water Board can reevaluate the load allocation, as appropriate.

WDRs are the regulatory component of a larger framework as articulated in the proposed TMDL Action Plan to enhance and restore beneficial uses and assess, abate, and prevent nuisance conditions related to sedimentation and flooding and achieve compliance with load allocations. Both the proposed TMDL Action Plan and WDRs acknowledge that sediment will continue to be mobilized from some sources, particularly in-channel sources, on the timberlands and transported to the impacted reach in amounts that are significantly above natural variability regardless of whether timber operations continue or not. The proposed Order permits discharge under strict requirements established to minimize the discharge to the maximum extent feasible. A Regional Water Board has broad authority to implement a load allocation, including setting the timeframes for achieving compliance.

## **6. Temporary Prohibition**

HRC and Green Diamond assert that the proposed temporary prohibition on timber harvest related activities in the five designated high risk subwatersheds is not justified. HRC maintains that the Regional Water Board has not shown a "cause and effect" relationship between its upstream activities and the lack of improvement in the downstream reach in order to impose the restrictions and management measures contained in the draft Order. Other commenters question the criteria used to designate risk and suggest that subwatersheds underlain by predominantly Wildcat Group bedrock should also be designated as high risk. The latter group voiced concerns that all of the subwatersheds designated as high risk are in the South Fork Elk River, and that lacking a similar harvesting prohibition in the North Fork would result in further degradation.

**Response** – The draft Order contains an interim requirement that HRC will refrain from timber harvest activity in five high risk subwatersheds: Clapp, Tom and Railroad Gulches, McCloud Creek and the Lower South Fork Elk River. The temporary prohibition is an important component of Regional Water Board's regulatory strategy to implement the TMDL zero load allocation. Regional Water Board staff considered a wide range of options to implement the zero load allocation through permit requirements, including a complete prohibition on any activities with the potential to discharge sediment until the loading

capacity in the impacted reach has been increased. Ultimately Regional Water Board staff has settled on an approach that establishes strong controls, including the temporary prohibition of harvesting in high risk subwatersheds and limiting harvest rates throughout the watershed. WDR provisions can be modified (relaxed or strengthened) by the Regional Water Board over time based on further evaluation of watershed conditions and progress towards restoring beneficial uses. This approach relies on voluntary participation by HRC in Elk River Watershed Stewardship Program and provides them permit coverage so that they may continue to operate and generate revenue from their timberlands in the watershed.

During the initial stages of WDR development, Regional Water Board staff developed a draft risk model of potential sediment discharge on a subwatershed scale. The draft model calculates risk as the summed product of risk factors and the associated consequence to water quality. It was designed to assist in designating the portions of the Upper Elk River as high, medium, and low risk of management related sediment discharge that could be used to inform appropriate levels of management activity. The draft model was run using varying combinations of input factors in order to test the sensitivity of the draft model to specific parameters. Input factors used in the development of the draft model include physical watershed parameters such as geologic substrate and modeled landslide hazard, as well as management impacts, such as harvest history and changes in peak flow from canopy removal, and empirical sediment production estimates. Regional Water Board staff presented the concept and explained the utility of the draft model at the November 18, 2015 Board Workshop. Regional Water Board staff also shared with HRC the draft model and several preliminary output maps generated using model predictions and various input parameters to provide them with an opportunity to review and comment on the proposed approach. Preliminary model runs consistently identified elevated risk of sediment discharge in the five subwatersheds predominantly underlain by the Hookton Formation. These five subwatersheds, Clapp, Tom Gulch, and Railroad Gulch, McCloud, and Lower South Fork Elk, are recognized as sensitive bedrock terrain in HRC's Elk River/Little Salmon River watershed analysis. Both the Regional Water Board and HRC staff recognize that these five subwatersheds are highly susceptible to erosional processes and generate high sediment loads. HRC's ROWD includes specific additional protection measures for their timber operations in these watersheds derived from their watershed analysis. Based on the broad overlap between the preliminary output of Regional Water Board's draft risk model and HRC's ROWD, Regional Water Board staff determined that it would be beneficial and consistent with water quality protection to align our approaches to the extent possible. The Wildcat Group is also recognized as being prone to high rates of surface erosion and mass wasting. This is confirmed in preliminary runs of the risk model using various input parameters, which identified elevated risk of sediment production from subwatersheds underlain by the Wildcat Group. However, risk in these areas is not as high as those areas underlain by the Hookton Formation and therefore, did not warrant the harvest prohibition. In addition, ranking relative risk for specific subwatersheds should not detract from the point that the proposed Order establishes requirements based on the premise that the entire Elk River Watershed is treated as sensitive and provided with a high level of protection. The proposed order WDR also retains the Executive Officer's authority to refrain from enrolling a THP in any subwatershed that is likely to cause additional sediment discharge.

The temporary prohibition is a stand-alone provision deemed reasonably necessary to prevent further degradation in the watershed, and is validly imposed pursuant to Water Code section 13243. No party disputes that logging activity generates discharges of sediment. In this case, no amount of sediment can be discharged and meet water quality standards. The Regional Water Board has discretion under Porter-Cologne for crafting a solution that may prohibit all discharges or allow time for a discharge to come into compliance with water quality standards. In the Elk River Watershed, it makes sense to avoid further disturbance in subwatersheds at the highest risk for triggering erosion events and other discharge sources. Staff is not proposing that the prohibition apply to the whole watershed, and the proposed prohibition is not permanent. Regional Water Board staff think this approach strikes a reasonable balance for the WDR.

### **7. Burden of Remediation**

HRC argues that the stringent water quality provisions in the draft Order, including the temporary prohibition, are a “back door means of requiring [HRC] to undertake” remediation. HRC, other parties, and individual Board members, raised the concern that the goals of the remediation and how success will be measured are undefined.

**Response:** The draft Order does provide an avenue for lifting the prohibition in high-risk subwatersheds when there has been a demonstrated and meaningful contribution to correcting beneficial use impairments and a reduction in flood frequency in the impacted reach. This option was provided in the event that HRC and others had implemented such projects. This option is not intended to force HRC's participation and/or contribution to downstream improvements.

As originally drafted, draft Order Section I.A.4 provides for two separate scenarios. Subdivision (b) contemplated interim projects that HRC or others might propose and implement in the shorter term that would provide interim relief to Elk River residents. The Regional Water Board has expressed particular concern about the homes, lives, property, and safety of local residents, and have directed staff to work diligently with Humboldt County to pursue all options that provide immediate health and safety relief. Subdivision (c) attempts to articulate conditions that would justify the permanent lifting of the prohibition, and is contemplated when lasting solutions have been realized. Under both scenarios, the types of projects that would be considered are necessarily described broadly, and could include flood flow routing improvements such as culverts and riparian plantation thinning, sediment storage reduction, and water supply reliability and infrastructure improvements. These projects all relate to, and are aimed at reducing impacts to beneficial uses.

In the proposed Order Staff have removed the option for partial lifting of the prohibition that would allow limited harvesting based on implementation of interim projects because the parties were not supportive of the provision, and because of the difficulty in determining parameters for interim projects. This section now addresses only the process for permanently removing the temporary prohibition.

Staff have also added additional guidance to the proposed Order regarding the lifting of the prohibition: a significant reduction in current flooding frequency in the impacted reach. In addition, the proposed Order provides an opportunity for parties to comment on any proposal to lift the prohibition, and has removed any delegation to the Executive Officer to make this decision.

It is not advisable to define specific projects or hard and fast criteria at this time. Conditions that would “lift” the prohibition are left intentionally broad as the ultimate solutions are not yet determined. Due to the watershed-wide scale of the problem and the challenge of influencing a dynamic riverine system, different types of approaches must be explored and tested. The Elk River Recovery Assessment and Watershed Stewardship Program were created for that purpose. Solutions may range from large or small engineering approaches, including active methods such as dredging and long-term channel maintenance, to more passive approaches such as conservation easements and outright property purchase, or a combination of these approaches. In addition to directly manipulating the channel and floodplain, solutions will likely include improvements to infrastructure, such as road access and water supply. These decisions will be made based on policy and technical considerations. A predetermined channel configuration or flood behavior may be beyond available resources and technological capability of reviewers and may ultimately cause more unintended consequences than they solve. For example, CAL FIRE’s letter suggests that dynamic equilibrium may not be a realistic objective and that feasible recovery actions may need to be reconciled with maintaining beneficial uses under a “quasi-equilibrium” system, in which periodic perturbations occur. The TMDL Action Plan provides an adaptive management framework that facilitates the evaluation and implementation of various options.

The broadly-defined criteria, combined with a well-defined public process for lifting the prohibition, is appropriate and also consistent with the adaptive management approach in the watershed. The remediation that must take place in the downstream reach is directly related to the impaired beneficial uses. Therefore, success will be measured by projects that provide interim or long-term relief to residents who are experiencing nuisance flooding and water supply impacts. In addition, downstream studies may identify projects designed to restore equilibrium to the fluvial system and thereby increase the assimilative capacity of the watershed. The types of projects will be further articulated by the three workgroups that will be organized in the Watershed Stewardship Program.

Due to the wide range of potential restoration approaches and outcomes, we believe it best to keep all reasonable options available.

## **8. Nexus and Proportionality**

HRC argues that water quality provisions in the draft Order beyond what is proposed in its ROWD violate the principles set forth by the United States Supreme Court in *Nollan v. California Coastal Commission* (1987) 483 U.S. 825 and *Dolan v. City of Tigard* (1994) 512 U.S. 374. HRC argues that the draft Order lacks “an essential nexus to a legitimate government interest” and even if it had the required nexus, the water quality provisions are not “roughly proportional to the activities to be permitted.”

**Response:** HRC's reliance on *Nollan* and *Dolan* to challenge the provisions in the Order is misplaced. The principles set forth in those cases are inapplicable to this Order. Moreover, even if they applied, the conditions of the Order fully meet the *Nollan/Dolan* standards.

First, *Nollan* and *Dolan* are similar, but distinct to "takings" cases in that they specifically apply to land use exactions--that is, demands by governments that landowners dedicate portions of their property (or in some cases a parcel-specific mitigation fee) as a condition of securing a development permit. (*Ehrlich v. City of Culver City* (1996) 12 Cal. 4<sup>th</sup> 854.) Under *Nollan* and *Dolan*, the government may choose whether and how a permit applicant is required to mitigate the impacts of a proposed development, but it may not leverage its legitimate interest in mitigation to pursue governmental ends that lack a nexus and rough proportionality to those impacts. (*Koontz v. St. Johns River Water Mgmt. Dist.* (2013) 133 S. Ct. 2586, 2595.) In other words, the doctrine set forth in those cases supports the view that the government cannot take through a permit condition that which it would otherwise have to pay for under the Fifth Amendment to the Constitution. *Nollan* and *Dolan* do not stand for the proposition that the government cannot condition a project, and even impose conditions that would give rise to a takings claim outside the permitting context. If an agency can deny a permit under its general police power, it can certainly require a lesser concession from the landowner for approval, including a possessory interest, or interest that diminishes the value of the property. (*Nollan v. California Coastal Comm'n* (1987) 483 U.S. 825, 836-37.) Under *Nollan* and *Dolan* if the condition is related to the harm or purpose that the agency seeks to address, and the measure of the condition is roughly proportional, there is no compensable taking.

For *Nollan* and *Dolan* to apply to the draft Order, there must first be a determination that the condition rises to a compensable taking. (*Powell v. City of Humboldt* (2014) 222 Cal. App. 4<sup>th</sup> 1424, 1439.) The measures in the Order do not amount to a physical occupation (or any type of otherwise compensable taking) of HRC's land. The measures require HRC to temporarily refrain from logging activities on subwatersheds determined to have a high risk of contributing sediment load to a stream system that has been assigned a zero load allocation for sediment. The draft Order also provides additional water quality protection measures, including harvest rate limitations, Class III riparian protections, wet weather restrictions, and a feasibility study for in-channel sediment. These measures are required to limit the amount of sediment discharged downstream to the impacted reach that could potentially exacerbate already impaired beneficial uses and existing nuisance conditions. These requirements do not amount to a physical occupation or land dedication as was at issue in *Nollan* and *Dolan*.

Second, even if HRC could show that the Order's conditions somehow amount to an otherwise compensable taking, where *Nollan/Dolan* applies, the conditions do comply with the *Nollan* and *Dolan* standards. The conditions in the Order are directly related to, and proportional to the goal of limiting sediment discharges to the Elk River. Under the essential nexus standard in *Nollan*, the condition fails if it "utterly fails to further the end advanced as the need for the justification." (*Nollan* 483 U.S. 825, 837.) Likewise, no precise or mathematical correlation is necessary in implementing the "roughly proportional" standard articulated in *Dolan*. So long as an individualized determination is made, and the condition is related in nature and extent to the impact it is acceptable. (*Action Apartment*

*Ass'n v. City of Santa Monica* (2008) 166 Cal. App. 4th 456, 469 citing *Dolan v. Tigard* 512 U.S. 374, 391.) The Order squarely meets both of these standards.

HRC's comment that a nexus is not satisfied because conditions and requirements in the upper Elk River Watershed do not relate to the Board's interest in discharges that originate from the lower Elk is not supportable. The Board has made the findings that the evidence shows any additional sediment load will impact the beneficial uses of the Elk River. That is precisely the impact that the temporary prohibition and other conditions in the Order address.

Third, HRC's assertion that the draft Order's requirements are not proportional to its activities because it is requiring the discharger to mitigate for past harms is inaccurate. The current conditions in the watershed require the Board to significantly limit future sediment discharges in order to meet water quality objectives and sustain beneficial uses. The Order's conditions are designed to significantly limit future discharges to protect beneficial uses in the Elk River. The Board is not attempting to require the discharger to mitigate more than the effects of HRC's proposed activity; the current conditions are such that additional discharges must be limited. The evidence shows the regulatory conditions are necessary to address the impacts, and HRC cannot escape regulation merely because a past owner may not have been subjected to the same requirements. (*Tahoe Keys Prop. Owners' Assn. v. State Water Res. Control Bd.*, (1994) 23 Cal. App. 4th 1459, 1483-84.)

Finally, the case cited by HRC, *Environmental Protection Information Center v. Department of Forestry and Fire Protection*, 44 Cal. 4th 459 (2008) (*EPIC*) does not apply here. *EPIC* was not a takings case or a holding based on a *Nollan/Dolan* analysis. In that case, a specific Fish and Game statute (Fish & Game Code, § 2081) required measures to mitigate the impacts from an authorized take be "roughly proportional" to the landowner's impact on the species. In that case, the court determined that the mitigation requirement went beyond that required by the "rough proportionality" standard in the statute. In contrast to the landowner's obligations at issue in *EPIC*, HRC is not required to implement measures that go beyond the impact of its activity. The result of logging in any of the watersheds will increase sediment load; the restrictions minimize that loading to protect the beneficial uses of the Elk River.

## **9. Use of incomplete or erroneous information**

One commenter states that the WDR is based on incomplete and perhaps erroneous information. The commenter cites as an example use of the peak flow model, which the commenter asserts failed to recognize reduced channel capacity caused by the deposition of sediment.

**Response:** If there are specific errors or omissions, we encourage interested parties to bring them to our attention so that we can correct or bolster information as needed. With respect to use of the peak flow model, as discussed above, the impacts of increased peak flows due to canopy removal are an important consideration. However, the Regional Water Board did not use the peak flow model to address flooding or establish specific requirements. It was used as one line of evidence to consider the localized impacts on sediment production to evaluate proposed harvest rates. As discussed below (see Issue

15), Dr. Jack Lewis did not find definitive trends in peak flows from analysis of hydrology data collected by Salmon Forever at their two monitoring stations in the North and South Forks of Elk River. Many studies of the hydrologic effects of logging have found that peak flow changes are a function of many variables, including timing, extent, and spatial distribution of canopy removal, road density and condition, drainage area, channel gradient, storm intensity or recurrence interval, seasonality and antecedent moisture conditions, bedrock geology, and channel substrate, (Grant, et al, 2008). It may be difficult to detect downstream peak flow effects in large basins such as in the impacted reach of Elk River, as these effects would likely be attenuated by other hydrologic processes as discharge and distance from disturbed area increases. In addition, peak flow effects may be limited in high gradient channels. Such channels typically drain small catchment areas.

### **10. Balance between downstream remediation and upstream land use controls**

EPIC wrote that considering the technical, regulatory, potential timeframe, and financial challenges that must be overcome, the Regional Water Board is relying too heavily on the Elk River Recovery Assessment. EPIC argues that the recovery assessment is in the initial stages of development and it is too early in the process to rely upon downstream remediation, and therefore, it is essential that land use controls must be sufficiently protective. HRC and other commenters assert that we're relying too heavily on land use controls in the upper watershed, that there's no conclusive evidence that current timber practices are contributing to sediment impairment, and that we should be focusing our efforts on identifying and correcting downstream impediments to channel conveyance.

**Response:** The proposed WDR for HRC's timberlands is one component of the Regional Water Board's overall strategy described in the draft TMDL Action Plan for the Upper Elk River Sediment TMDL for addressing beneficial use impairment and attaining water quality standards. That strategy includes both regulatory and non-regulatory actions and recognizes that recovery will require a variety of approaches and efforts applied throughout the watershed, from the headwaters to the mouth. Regional Water Board staff recognize that no single approach is sufficient to improve a problem of the scale and complexity as the sediment impairment in Elk River. Incorporating an adaptive management framework is critical as well, as we recognize that the state of knowledge and development of restoration techniques will continue to evolve.

Regional Water Board staff recognize that in-channel or near-channel restoration activities in such a sensitive waterbody as Elk River must be approached with great caution and technical analysis. Fluvial dynamics are complex and further perturbing an already severely impaired stream can lead to significant unintended consequences. As such, we are guided by the principal of, "first, do no harm." We recognize that there is the potential that opportunities to implement feasible and effective restoration activities may be limited. However, we believe that the Watershed Stewardship Program has a sound strategy to assemble the right combination of technical expertise with local stakeholders as to maximize the likelihood of a positive outcome.

Land use controls, such as those established by the proposed Order, are another critical component of the overall strategy. The proposed Order includes substantial provisions to address controllable sources of sediment while allowing HRC to operate and while

progress on downstream restoration is advanced. In consideration of the severity of sediment impacts on the Elk River community and beneficial uses in Elk River, the current approach has struck a balance between pursuing options for downstream restoration and appropriately protective land use controls, which can be modified as the resolution of our understanding of the link between current practices and watershed conditions improves.

### **11. Range of Reasonable Alternatives**

Several commenters argue that the Regional Water Board has not considered a reasonable range of alternatives, and urged them to consider alternatives ranging from a complete logging moratorium to acceptance of the proposed ROWD, with no additional requirements

**Response:** The Regional Water Board has considered a reasonable range of alternatives, in the overall TMDL Action Plan strategy and within the draft WDR for HRC. Both the Technical Report and HRC's watershed analysis show that significant sediment sources are present both within and adjacent to stream channels throughout the headwater tributaries of the Elk River. Headwater streams destabilized from past logging activities will likely continue to adjust and discharge sediment for many years. It is also clear that the downstream reach has aggraded and continues to aggrade, and lacks assimilative capacity for further sediment inputs.

For the TMDL Action Plan, the Regional Water Board is relying on a previously prepared SED for the Temperature Policy basin plan amendment, and the subsequent addendum to the SED that was prepared for the Policy in Support of Restoration in the North Coast. The SED analyzes a variety of implementation actions to meet temperature objectives, which includes measures to control sedimentation and restoration. The SED included a range of alternatives for implementation of the region-wide Temperature Policy, much of which is relevant for the regulation of waste discharges and other controllable water quality factors associated with timber operations. As explained in the addendum for the Restoration Policy, which is neutral regarding as to whether restoration actions are voluntary or otherwise required under the law, the only meaningful alternative is to not adopt the Policy, which presents a possibility that fewer restoration projects would be implemented. This alternative would not meet the purpose of the Restoration Policy, which is to encourage and promote restoration consistent with the Clean Water Act and the Porter-Cologne Water Quality Control Act. In addition, various alternatives specific to the Elk River watershed have been examined substantively as an inherent part of the planning process, in the development of the TMDL Action Plan and within the draft WDR for HRC.

During the development of the draft TMDL Action Plan and WDR for HRC alternatives for addressing legacy sediment impacts have been considered, including naming current timberland owners as responsible parties for excess sediment stored in the impacted reach and issuing cleanup and abatement orders, mitigation banking that would require timberland owners to fund offsetting mitigations to remove downstream sediment based on sediment discharge from timber operations, and tying allowable discharges associated with harvest rates to progress on downstream remediation. Ultimately, in cooperation with its partners the Regional Water Board has begun development of the Watershed Stewardship Program, a participatory program that engages community members, residents, scientists, land managers, and regulatory agencies in developing a collaborative

planning process to address recovery of downstream beneficial uses and abatement of nuisance conditions.

The Regional Water Board also considered various options to implement the zero load allocation for upstream sediment inputs through permit requirements. This includes consideration of a complete prohibition on any activities with the potential to discharge sediment until the loading capacity in the impacted reach has been increased. (See e.g. In re: Petition of Kristi Wrigley, Jesse Noell and Stephanie Bennett, for failure to act on Petitioner's May 7, 2014 request for a logging moratorium in the Elk River watershed (July 21, 2014), SWRCB/OCC File No. 2318.) The proposed WDRs are presented to the Regional Water Board as a proposal, and we note that the Board may choose to expand or diminish the scope of the proposed temporary prohibition, or other conditions, upon consideration of the evidence and testimony.

As described in finding 57 of the proposed Order, halting all timber harvest activity in the UER watershed is not necessarily feasible or helpful in promoting HRC's participation in cleanup and restoration efforts. The Regional Water Board has also considered the option of relying solely on the provisions proposed in HRC's ROWD. The proposed Order relies on and incorporates the majority of measures proposed in HRC's ROWD; however, the ROWD is not considered fully adequate to meet all water quality requirements associated with Elk River. Ultimately Regional Water Board staff has proposed an approach that establishes strong controls, including the ROWD measures, additional water quality protections including a temporary prohibition of harvesting in high risk areas and limiting harvest rates throughout the watershed. Management controls can be modified by the Regional Water Board (relaxed or strengthened) over time based on further evaluation of watershed conditions and progress towards restoring beneficial uses. This approach relies on voluntary participation by HRC in watershed stewardship and provides them permit coverage so that they may continue to generate revenue from their timberlands in the watershed.

For the TMDL Action Plan, various alternatives have been examined and no additional analysis of range of alternatives is required pursuant to California Code of Regulations, title 23, section 3777. Additional alternatives analysis under CEQA is not required in a mitigated negative declaration, although as explained above, the Regional Water Board does have substantive alternatives presented in the draft Order for HRC.

## **12. Railroad Gulch paired watershed study and adaptive management**

The CAL FIRE commenter strongly urged the Regional Water Board to enroll THP 1-12-110 HUM in order to allow the Railroad Gulch paired watershed study to proceed. This THP includes 590 acres in three harvest units, two of which are located in subwatersheds designated as high risk, and therefore, would be subject to the temporary harvest prohibition. Of particular interest to CAL FIRE is harvest unit 2, located in Railroad Gulch.

**Response:** Unit 2 has been included in a paired watershed study to evaluate the impacts of harvesting under HRCs HCP and watershed analysis based prescriptions on sediment production. The study, which is a collaboration between HRC, CAL FIRE, and Humboldt State University consists of a Before and After Control Impact (BACI) study on two

branches of Railroad Gulch with roughly equivalent area, bedrock geology, hillslope gradients, vegetation and management history. Harvest unit 2 in the East Branch of Railroad Gulch would be harvested (treatment) and the West Branch (the control) would not be harvested. Pre-treatment conditions in both branches have been closely monitored. Following harvesting 142 acres in the East branch using group and single tree selection and management prescriptions described in their ROWD, sediment discharge associated with road watercourse crossings and surface erosion, landslides, channel incision or aggradation, bank erosion, channel storage, suspended sediment, and turbidity will be monitored. Regional Water Board staff have been closely involved with review of the McCloud Shaw THP beginning with preconsultation with HRC forestry staff in November 2012. At that time, Regional Water Board staff were in the process of completing the draft peer reviewed staff report for the sediment TMDL for the Upper Elk River Watershed. During the initial preconsultations and throughout the subsequent THP review process, Regional Water Board staff brought up concerns regarding the potential for harvesting on the McCloud Shaw THP to result in increased sediment production and loading in the impacted reach. These concerns were due to the proximity of the harvest units to the impacted reach and the vulnerability of the underlying bedrock to erosion and the presence of numerous unstable areas and watercourses. While remaining cautious of the potential for sediment discharge from harvesting operations, Regional Water Board supports this type of study as it will further our understanding of the impacts of current management practices. As such, the proposed WDR will specify that unit 2 of the McCloud Shaw THP is not subject to the temporary prohibition.

### **13. Discretionary THP enrollment**

Section V of the draft WDR, Application and Enrollment Procedure, specifies that prior to January 2020, before operations may commence on an approved THP, HRC must apply for enrollment of the THP under the WDR by submitting an enrollment application to the Regional Water Board Executive Officer. After January 2020, an enrollment process is not required to commence operations for CAL FIRE-approved THPs that fully comply with requirements of this Order, unless notified in writing by the Regional Water Board Executive Officer that the plan is not eligible for coverage.

One commenter believes that a discretionary enrollment procedure requiring written approval by the Executive Officer is essential to ensuring that water quality objectives are being attained, nuisance conditions are being abated, and watershed recovery is progressing in a meaningful and measureable fashion, and therefore, there should be no pre-determined date for the enrollment requirement to end. HRC maintains that the enrollment requirement for individual THPs is an unnecessary burden for the company and for the Regional Water Board, as we would already have reviewed each THP as part of the CAL FIRE review process.

**Response:** The Regional Water Board is moving towards watershed or ownership based timber WDRs. Such an approach provides efficiencies to landowners and agencies and can be better suited to addressing large scale impacts such as road systems and cumulative watershed effects. Several existing watershed or ownership-wide WDRs, including those for HRC in Bear Creek and Jordan Creek and for the majority of Green Diamond Resource Company's timberland, provide for automatic enrollment of individual THP upon approval

by CAL FIRE. Regional Water Board staff review all THPs in the North Coast Region and inspect a subset of THPs. Recommendations made by Regional Water Board staff based on site specific field review or other technical information pertinent to a proposed plan (such as TMDL findings) may be accepted by the plan submitter or forwarded by CAL FIRE during second review. Generally, THP water quality issues are resolved during the review process. If neither the plan submitter nor CAL FIRE agree to Regional Water Board recommendation, additional recourse are available through the THP review and approval process, including nonconcurrency pursuant to 1035.5(i), Head of Agency Appeal, or pursuant to PRC 4581.71, which specifies that a timber harvesting plan may not be approved if the appropriate regional water quality control board finds, based on substantial evidence, that the timber operations proposed in the plan will result in a discharge into a watercourse that has been classified as impaired due to sediment under CWA section 303(d). To date, the Regional Water Board has not exercised this option. It is essential that Regional Water Board maintain its authority under Porter-Cologne to ensure that timber harvesting activities not result in further degradation. Regardless of whether the enrollment process entails the need for a letter confirming enrollment, as is proposed for the first five years following adoption of the Order, or plans are automatically enrolled following approval by CAL FIRE, the Regional Water Board Executive Officer may withhold or terminate enrollment of a plan at any time if it is determined that the plan may result in further water quality degradation. This determination may be made based on considerations such as site specific observations by staff, additional information or analysis, or proposed operations in high risk areas or above sensitive receiving waters.

In the case in Elk River, application and enrollment of individual plans is the most efficient manner to achieve that goal, at least for the near term as the new WDR requirements and associated watershed restoration efforts are implemented and running smoothly. Individual THP enrollment should by no means be considered a hardship or imposition. The majority of timberland owners in the North Coast Region routinely apply for, and receive coverage for individual THPs under the General WDR, Order No. R1-2004-0030. This process has been in place now for almost twelve years and it works smoothly and efficiently. HRC currently must enroll THPs individually on its timberlands covered by the current WDRs in Elk River and Freshwater Creek.

#### **14. Economic Considerations**

A few commenters requested the Regional Water Board's consideration of economic factors. Vivian Hilliwell, on behalf of PCFFA, expressed concern that the Regional Water Board adequately describe the economic benefits of fully functioning forest systems. In a CEQA comment, HRC contends that the Regional Water Board failed to consider economic effects of proposed WDR provisions. Elk River residents cite repeated economic impacts from the increased flooding and excess sediment. (See also, Issue 1.)

**Response:** The Regional Water Board considers a variety of relevant factors when developing the TMDL Actions Plan, and in drafting the WDR. As described above, when considering a range of reasonable alternatives, economics is an important factor. As with most of the Regional Water Board's work toward protecting or restoring beneficial uses, the Board is aware of and appreciates the economic benefits provided when beneficial uses are adequately protected. Economic factors are also considered under Water Code section

13241. Contrary to HRC's allegation, the Regional Water Board considers economics in determining whether alternatives are feasible. HRC cites no evidence to support its claim that the proposed WDR would "cripple" Elk River operations. Staff considered HRC's economics when proposing only a temporary prohibition on only the highest risk watersheds. (See draft Order, finding 57.)

The Regional Water Board is concerned especially with the health and safety threats to downstream residents, but also acknowledges the economic impacts expressed by various residents. For example, resident Jedediah Parr cites damaged water supply equipment, a threat to the foundation of his house, and missed work days of work due to the impassibility of the intersection of Elk River Road and Wrigley Road. Resident Christina Pasteris cites damage to sprinklers as they fill with silt. Kristy Wrigley cites repeated damage to small agricultural operations, including apple farming, flower production, and general vegetable production.

The Regional Water Board is an agency with water quality authority that applies generally to protecting the beneficial uses of water bodies. It is not an agency or court of law that can award damages. The draft WDR is designed to minimize discharge of new sediment and reduce inputs of existing sediment upstream. But we know that damage is ongoing and additional actions are necessary. The Elk River Recovery Assessment and Watershed Stewardship process is specifically designed to examine and implement projects to restore beneficial uses in this reach for the health and safety of the local community, and to reduce economic impacts experienced by local residents. Controlling silviculture operations alone will not by itself undue damage from past activity.

### **15. Turbidity Response to Logging Moratorium**

Several commenters assert that monitoring data collected by Salmon Forever demonstrate that suspended sediment concentrations and turbidity decreased following a complete moratorium on logging imposed by CAL FIRE between 1999 and 2001 and then again between 2006 and 2008 when harvest rates decreased as Palco was in the bankruptcy process.

These monitoring data are cited to support the claim that sediment deposition and turbidity levels decreased when logging levels decreased, and to support the commenters' request for a total moratorium on all logging in the watershed.

**Response:** We are not persuaded by these data and the assertion that a complete logging moratorium is the best approach for advancing water quality improvements. Dr. Jack Lewis presented the following conclusions at the Elk River Forum in Eureka in January 2014 based on his analysis of data collected by Salmon Forever at two monitoring stations in the South and North Forks of Elk River, just upstream from their confluence:

- "There is actually NOT good evidence here linking equivalent clearcut area with the trends in suspended sediment concentrations (SSC);
- SFM has consistently the highest loads of streams monitored in the Humboldt Bay region. In most years, KRW is a distant second;

- Aggradation continues at most cross-sections in lower Elk River, often exceeding 1 ft or 100 ft<sup>2</sup> for the decade;
- No trends in peak flows detected in Elk River;
- Both Elk stations saw a decline in storm event loads and SSC prior to 2008, followed by a bounce in 2011. In 2013 SFM increased to 35-37% above the mean."

Dr. Lewis statements are consistent with Regional Water Board staff's analysis of the Salmon Forever data, that the data are inconclusive regarding the correlation between harvest rates and SSC. Dr. Lewis speculated whether the observed increase in SSC is due to road rehabilitation or harvesting or legacy impacts and that it would be important to try and link these results with source inventories. In his presentation, he posited the following broad interpretations of the SSC data from the two Elk River monitoring stations:

- "Management is now benign and the monitoring reflects it – unsupported
- Management is now benign but it will take more time for the monitoring to reflect it – plausible
- Management has not improved enough and that's why we don't see improvements downstream – maybe"

In addition, Dr. Lewis provided the following recommendation related to management controls to limit sediment effects:

- "Be cautious until improvements are measurable;
- Don't use the roads when they are wet;
- Keep canopy openings small (<0.25 acre?);
- Avoid the most unstable areas;
- Minimize ground disturbance, especially near stream channels, and maintain soil cover;
- Reduce the frequency of reentry;
- Be selective/smart when fixing legacy issues;
- We know that removing too much canopy has erosional consequences, but we need a better understanding of the relationship between canopy opening size and hillslope hydrology."

All of the above considerations have been incorporated into the specific requirements of the proposed Order.

Due to the natural variability in sediment production and complexity of the interaction of many inherent watershed processes and human activity, it may never be possible to definitively answer some of these questions. It is however, possible to understand the physical processes at play and observe sediment trends from monitoring data. Based on those considerations and acknowledging inherent uncertainty, the Regional Water Board has developed what we consider to be reasonable and effective discharge requirements with an adaptive management mechanism built in to modify requirements as warranted.

## 16. CEQA Comments

### Green Diamond Management Plan

EPIC questions the potential overall effectiveness of imposing a temporary prohibition on HRC timber operations, while allowing Green Diamond to clearcut up to 75 acres per-year on a three-year rolling average. As explained in the Action Plan, the Regional Water Board expects that Green Diamond will bring revisions to the Elk River Management Plan as required under Resolution No. R1-2016-0017. The Regional Water Board process for review and approval of any revised Management Plan will be subject to public review and comment. At that time, Regional Water Board staff will provide written responses pertaining to Green Diamond's Elk River Management Plan.

EPIC also suggests that the mitigated negative declaration must identify and evaluate the cumulative adverse water quality impacts associated with Green Diamond's operations. EPIC maintains that this is needed to evaluate whether the proposal to allow exceptions to the temporary prohibition will result in increased significant and cumulative impacts. This comment does not utilize the appropriate baseline, which is the existing condition. The impacts of HRC's future logging activity as proposed in the draft Order is evaluated for environmental impacts as compared to existing conditions, which includes a higher rate of harvest by HRC and Green Diamond's existing Management Plan. Under the proposed WDR for HRC and a future revised Green Diamond Management Plan that we presume will contain additional water quality protections, the impacts will be less than significant or hopefully beneficial. We do not mean to suggest that the cumulative impacts in this watershed are not significant and readily apparent. But unfortunately, these impacts have already occurred. The draft Order acknowledges that any new sediment exacerbates an already impaired condition, and this point is critical in the proper implementation of water quality law. But it does not necessarily extend to the application of CEQA, which only requires disclosure of impacts above the existing condition.

### Feasible Mitigation Measures

HRC argues that the Regional Board has failed to acknowledge the net reduction in sediment over existing conditions that result in cumulative benefits to the watershed rather than adverse cumulative effects. HRC claims that waste discharge requirements reflected in the draft Initial Study/Negative Declaration are "clearly infeasible" and "the imposition of measures to mitigate or avoid such impacts are not supported by substantial evidence."

**Response:** As described in detail in the mitigated negative declaration, implementation of the draft Order provisions, including limiting canopy removal through enforceable watershed-, and subwatershed-wide harvest limits, limiting harvesting to partial harvest methods (ie. no clearcutting), temporary prohibition on harvesting in high risk subwatersheds, robust riparian buffers, measures to control sediment discharge from roads, including limiting wet weather operations, identification and treatment of existing controllable sediment discharge sources throughout the watershed, including a feasibility study to treat sediment in and adjacent to stream channels, and an adaptive management framework informed by a monitoring and reporting component, ensure that HRC's continued operations in the Elk River Watershed will not cause significant effects on the

environment that cannot be mitigated to a less-than-significant significant level (above the baseline condition).

The draft Order provisions are necessary to protect water quality under the Water Code and federal Clean Water Act first and foremost. (See also Issue 3 above.) Implementation of these provisions may inform the Regional Water Board's CEQA findings, but they are not imposed independently under CEQA. We have also explained that HRC's "net sediment benefits" argument fails because a landowner is responsible for continuing discharges on their property as well any newly-proposed or change in an existing discharge. As described elsewhere in this document and Responses to Comments on the TMDL Action Plan, the Regional Water Board considers economics and other relevant factors under Water Code section 13241.

### **17. Concurrent Consideration of proposed WDR and TMDL Action Plan**

A benefit of having both a proposed permit (i.e. WDR) and basin plan amendment (i.e. TMDL Action Plan) is that the Regional Water Board may adopt the permit in the absence of an adopted TMDL. The proposed WDR is not dependent on the Regional Water Board adopting the TMDL Action Plan. While both are informed by the Technical Report, that is just one of multiple lines of evidence to support the water quality provisions in the proposed Order.

In its comments on the draft Order, HRC expressed concern about the Regional Water Board's ability to consider both draft documents concurrently, stating that "it would be improper in the WDRs proceeding to assume the propriety of imposing the extensive regulatory requirements reflected in Tetra Tech's recommendations and the TMDL Action Plan." There are several problems with this argument. First, the TMDL Action Plan does not contain extensive regulatory requirements, and in fact is quite deferential to how a WDR may be crafted. (See TMDL Action Plan at 7 [The Regional Water Board has discretion in developing WDRs that can allow individual dischargers to tailor a compliance strategy].) The only arguably regulatory requirement is the zero load allocation, and the TMDL Action Plan is clear that this does not constitute an effluent limitation or a waste load allocation, and the Board has discretion on how it chooses to implement it. The zero load allocation is a basic construct that directs the Board to craft the permit in a manner that reduces and eliminates waste discharges to the maximum extent practicable, which is what most permits do in the absence of a load allocation defined as zero.

Second, having both documents in draft form does not imply "that the Regional Board had already reached conclusions regarding the TMDL" or that the "Regional Board is not open to adjusting its proposals based on consideration of scientific information and comments that differ with the assertions reflected in the proposals." That is the whole point of the hearing process. The Regional Water Board can, and does, consider all testimony and evidence and may make amendments as it sees fit.

Finally, we note that the underlying science does not need to be perfect to support Board action on the proposed TMDL Action Plan or the proposed Order. We explicitly acknowledge the inherent uncertainty regarding the interaction between geomorphic and fluvial processes throughout the watershed and sediment impacts associated with land use.

Regional Water Board staff has developed a proposed WDR that is supported by substantial evidence in the record, some of which is compiled in the Technical Report. The proposed WDR has also been developed in consideration of a substantial body of scientific knowledge on the watershed impacts from timber harvesting and associated activities as well as the professional judgment based on Regional Water Board staff's many years of experience in timber regulations throughout the North Coast in general and Elk River in particular. That does not mean there is not a different configuration that could also be supported by substantial evidence.

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**Attachment A –  
Response to Comments  
on  
Proposed ORDER NO. R1-2016-0004**

Waste Discharge Requirements

For

Nonpoint Source Discharges and Other Controllable Water Quality Factors Related to  
Timber Harvesting and Associated Activities Conducted by Humboldt Redwood  
Company, LLC In the  
Upper Elk River Watershed

Humboldt County

Prepared by:  
North Coast Regional Water Quality Control Board  
April 7, 2016  
**Elk River Timeline**

1974-1987: Annual rate of harvest  
Freshwater Creel: 1% /year  
North Fork Elk River: 0.5% /year

1987-1997: Annual ROH:  
Freshwater Creel: 4.8% /year  
North Fork Elk River: 3.8%/year

1995-1997: Large storms triggering landslides

1997:

September

- RWB issues CAO 97-115 to PALCO for THP-related discharges to NF Elk River
- Residents address RWB about sediment impacts in 5 watersheds, failure of CDF review and need for RWB assistance with water quality

October - Staff update to RWB about cumulative impacts in 5 watersheds

1998:

February

- CDF informed Pacific Lumber no new THPs would be approved in Bear, Stitz, & Jordan watersheds until information submitted is consistent with 10/23/97 13267(b) request.
- Resident testimony on 5 watershed impacts. Petition to RWB for emergency halt to winter logging in Humboldt Co.

July - Consideration of ACLs for late reports for CAO 97-115

September

- Calculation of silvicultural-related landslide rates in NFER
- RWB Issues CAO 98-100 to PALCO in North Fork Elk River to abate sediment effects to pre-1993 levels

October - RWB 13267(b) letter to PALCO describes association between harvesting and landslides. Requires monitoring in North Fork Elk River.

November - Emergency petition to Board of Forestry regarding THP landslides

1999:

Citizen monitoring begins in Freshwater Creek and Elk River

March - PALCO HCP/SYP approved

December - Prior to new THP approval in Freshwater and NF Elk, CDF requires PALCO to submit flood evaluation & complete Level II Watershed Analysis

2002:

April:

- Humboldt Watershed Council & others petition Regional Board requesting WDRs in five watersheds
- RWB attends site visit at Freshwater and Elk
- Enforcement options described to RWB

September - Staff Report: proposed RWB actions in 5 watersheds

2001:

February - Monitoring and Reporting Program R1-2001-19 issued to PALCO for THP in South Fork Elk River

2002:

January - CDF Elk River Peak Flow Analysis allows 600 CCE acre/year in Elk River

February: Adopted Motions

**Item 13** – Report on the remand of the Humboldt Watershed Council Petition, Elk River and Freshwater, Bear, Jordan, and Stitz Creeks.

**Motion 1:** Concur with the following actions proposed by staff, and pursue mediation to respond to the State Water Board remand order:

- 1) Develop TMDLs for Elk River and Freshwater Creeks on an expedited timeframe, resulting in development by Fall 2003
- 2) Continue meetings with PALCO to develop monitoring and reporting plans for basin-wide trend monitoring and source identification monitoring
- 3) Issue 13267(b) Monitoring and Reporting Programs for THP-specific monitoring in all Five Watersheds as the need arises

- 4) Require 13267(b) Technical Reports for existing or new information to support TMDLs, etc.

**Motion 2:** Authorize staff to return to the Regional Water Board with criteria for requiring Reports of Waste Discharge

April:

- RWB sponsors mediation between residents, environmental groups (e.g. Humboldt Watershed Council), non-industrial timberland owners, and Palco.
  
- Public hearing for consideration of potential requests for Report(s) of Waste Discharge for timber harvest activities on and about Elk River.

**Adopted Motions:**

- 1) Continue to move forward with mediation efforts in the [five] watersheds.
- 2) Executive Director to give the Board a status report on existing monitoring requests at the next Board meeting.
- 3) Staff should consider further Cleanup and Abatement Orders on Elk River and Freshwater.

May:

- Adopted Motions
  - Item 31** – Report on status of monitoring in Elk River, and Freshwater, Jordan, Bear, and Stitz Creeks.
  - Motion:** Convening Committee to be facilitated by CONCUR, Inc.
  
- TMDL info request to PALCO

June: Adopted Motions

**Item 15** – Update on TMDL activities, monitoring programs, and cleanup and abatement activities in Elk River, and Freshwater, Bear, Jordan, and Stitz Creeks.

**Motion (in five parts):**

- 1) Accept the report from the Convening Committee
- 2) Staff to initiate a facilitated scientific review process and a facilitated watershed-working group
- 3) Staff to invite the members of the existing Convening Committee and representatives from Elk River to assist staff in finalizing a scientific review panel
- 4) Staff to expand the existing Convening Committee to a facilitated watershed working group
- 5) The Board recognizes that their Executive Officer has existing delegated authority to take any actions that she deems appropriate.

July: CAO R1-2002-0114 in NFER

August:

- CAO R1-2002-0085 in NFER
  
- MRP Orders and Cooperative approaches for TMDL monitoring in Freshwater & Elk River

November - R1-2002-0105 WDRs for Elk River winter ops

December:

- Adopted Motions

**Item 4** – Consideration of State Water Resources Control No. 2002-0019 in the Matter of the Petition of the Humboldt Watershed Council, Jesse Noell and Ken Miller (Petition)

**Motion:** Approve the timeline [for additional activities in Elk River and Freshwater, Jordan, Bear and Stitz Creeks] recommended by Regional Water Board staff as a working document, including the following actions:

- Accelerate TMDL Development
- Require Monitoring for TMDL development
- Issue Waste Discharge Requirements for THPs
- Require Monitoring for Waste Discharge Requirements
- Require Technical Reports for Watershed Restoration Feasibility Alternatives
- Issue Cleanup and Abatement Orders for Watershed Restoration

- CAO R1-2002-0114 in NFER
- ISRP Phase I Report : Final Report on Sediment Impairment and Effects on Beneficial Uses of the Elk River and Stitz, Bear, Jordan, and Freshwater Creeks
- R1-2003-0007 WDRs for winter ops in Elk River

2003:

January - Adopted Motions

**Item 2** – Revision of Order No. R1-2002-0105 Waste Discharge Requirements, The Pacific Lumber Company, Elk River, Humboldt County, WDID No. 1B02133RHUM.

**Motion:** Adopt Order No. R1-2003-0007 revision of [winter operations] Waste Discharge Requirements for Elk River, as amended, without timber harvesting plan 1-00-115 HUM.

**Motion:** Allow no further waivers.

**Item 12** – Report by CONCUR, Inc., and the independent science panel: "Final Report on Sediment Impairment and Effects on Beneficial Uses of the Elk River and Stitz, Bear, Jordan and Freshwater Creeks."

**Motion 1:** Staff to prepare a sensitive watershed nomination of the five watersheds to BOF pursuant to 916.8.

**Motion 2:** Staff should require information for empirical sediment budget for TMDL development

**Motion 3:** Dr. Twiss' may assist with GIS efforts.

**Motion 4:** Use the HCP as a mechanism for implementing some of the Regional Water Board's requirements

**Motion 5:** Develop Phase II of the Independent Scientific Review Panel and report back to the Regional Water Board in February.

February - Adopted Motions

**Item 16** – Petition for enforcement action, filed by Environmental Protection Information Center and Humboldt Watershed Council.

**Motion 1:** Deny the Petition.

**Motion 2:** Board wishes to make clear that the commencement of activities under a Timber Harvest Plan constitutes the initiation of a discharge under Section 13264 that could lead to enforcement under Section 13265.

**Item 18** – Update on work efforts in five Humboldt County watersheds Elk River, Freshwater Creek, Jordan Creek, Bear Creek, and Stitz Creek.

**Motion:** Accept staff's recommendation that the Independent Scientific Review Panel look at the HCP and propose Terms of Reference for Phase II of the panel's efforts.

May:

- 13267(b) letter issued under TMDL development in five watersheds requiring submission of info to calculate empirical sediment
- Adopted Motions
  - Item 17** – Update on work efforts, including progress on the TMDL, in Humboldt County watersheds Elk River, Freshwater Creek, Jordan Creek, Bear Creek, and Stitz Creek.

**Motion:** Accept the Terms of Reference for Phase II of the Independent Scientific Review Panel efforts.

August:

- ISRP II Report : Independent Scientific Review Panel on Sediment Impairment and Effects on Beneficial Uses of the Elk River and Stitz, Bear, Jordan and Freshwater Creeks
- Elk River Sensitive Watershed Nomination from RWB
- Adopted Motions
  - Item 3** – Workshop [Part 1] on Humboldt Watersheds Independent Scientific Review Panel Phase II Report
  - Item 16** – Status report on work efforts in five Humboldt County watersheds: Elk River, Freshwater Creek, Jordan Creek, Bear Creek, and Stitz Creek.
  - Item 17** – Consideration of a sensitive watershed nomination to the Board of Forestry for the Elk River watershed pursuant to section 916.8 of the Forest Practice Rules.
    - Motion:** Adopt Resolution No. R1-2003-0076 forwarding the Elk River Sensitive Watershed Nomination to the Board of Forestry with the date changes recommended by staff and with the name change of the Executive Officer.

October - Elk River Residents petition RWB to require Pacific Lumber to remove sediment deposits from Elk River

November:

- Winter Operations WDRs R1-2003-0018 (ER) and R1-2003-0119 (FW)
- Adopted Motions
  - Item 1** – Continuation [Part 3] of Humboldt Watersheds Independent Scientific Review Panel Phase II Public Workshop.
  - Item 5** – Public Hearing Order No. R1-2003-0119 and Order No. R1-2003-0118, the Pacific Lumber Company, Scotia Pacific Company LLC, and Salmon Creek Corporation, Waste Discharge Requirements for Freshwater Creek And Elk River, Humboldt County
    - Motion:** Adopt Order No. R1-2003-0118 [Winter Operations] Waste Discharge Requirements for Elk River and Order No. R1-2003-0119 [Winter Operations] Waste Discharge Requirements for Freshwater Creek with errata.

December - Adopted Motions

**Item 17** – Update and direction to staff on work efforts in the five Humboldt County watersheds.

**Motion 1:** Additional Regional Water Board regulatory and non-regulatory actions... are necessary to address the water quality impacts due to rate and scale of land disturbing activities in the Five Watersheds.

**Motion 2:** Staff shall require [the submission of] Reports of Waste Discharge, leading to WDRs on a watershed-unit or segment basis, with larger mitigation ratios as appropriate, in Elk and Freshwater.

**Motion 3:** Executive Officer to prepare a proposal for pursuing short-term in-stream remediation options, exclusive of dredging

**Motion 4:** Cleanup and Abatement Order No. RB1-2002-0114 [shall] be revised to clarify the inclusion of South Fork Elk River in the Order.

**Motion 6:** Until the watershed-wide WDRs are in place, staff should develop additional mitigation measures as necessary to address cumulative impacts for individual THPs (e.g. road mitigations, sediment budgets, increased mitigation ratios, and year-round requirements)

**Motion 7:** Initiate interagency cooperation to achieve common environmental goals and objectives and develop joint regulatory efforts to achieve Basin Plan objectives.

2004:

January - June: Extensive meetings between RWB staff and PALCO about watershed-wide WDRs

February:

- Staff presents findings on investigation of channel modification and funding options

- Adopted Motions

**Item 12** – Update on investigation of channel modification options to lessen flood intensity in Elk River and Freshwater Creek.

**Motion:** Authorize the Executive Officer to explore dredging options with other agencies.

April - CAO R1-2004-0028 in South Fork & Mainstem Elk

May:

- RWB & PALCO discuss PALCO conduct feasibility study of flooding in ER

- Adopted Motions

**Item 9** – Response to William Burtain petition for Clean-Up and Abatement Order for dredging of Elk River.

**Motion:** Adopt Resolution No. R1-2004-0042, with amendments, declining the petition and directing the Executive Officer to continue to work with PALCO to compile the information necessary to conduct a flooding assessment

- RWB denies William Burtain's petition to issue an order requiring Pacific Lumber Company to embark on dredging of sediment deposits in the North Fork, South Fork, and Main Stem Elk River.

June - Request for ROWD for Elk River to PALCO

November - Adopted Motions

**Item 15** – Discussion of permitting for Scotia Pacific Company, LLC, Salmon Creek Corporation, Pacific Lumber Company, and Green Diamond Resource Company, Elk and Freshwater watersheds, Humboldt County.

**Motion (in three parts):**

- 1) Executive Officer to consider a limited number of THPs for enrollment in the General Waste Discharge Requirements if and to the extent that she can establish a record and basis for finding eligibility.
- 2) Reaffirm the Regional Water Board motions and hearing record of December 2003.
- 3) Reaffirm the Regional Water Board General Waste Discharge and waiver policies as adopted.

2005:

January - PALCO complete ROWD for Elk River

May - PALCO submits revised landslide data for Elk River

2006:

May - RWB adopts Order No. R1-2006-0039, WDRs for Elk River, which includes harvest limits and erosion control plan requirements, and Tier II zero landslide related sediment discharge provision.

2006 – present:

- RWB staff implement WDRs through regular inspections and reporting requirement
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2008:

September – RWB adopts Order No. R1-2008-0071, Tier 2 monitoring and reporting program

October - HRC acquires former PALCO timberlands and switch to unevenaged management throughout the ownership

A technical advisory committee (TAC) evaluated Elk River sediment information and helped to develop a work plan to achieve a recovery strategy that meets the needs of a feasibility study.

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2009:

October – RWB workshop for Elk River TMDL

Regional Water Board staff and Redwood Community Action Agency (RCAA) develop and submit Elk River Recovery Assessment

2012:

March:

– RWB Workshop on development of Elk River TMDL

June:

- RWB staff present update on status of Elk River and Freshwater Creek WDRs and CAOs

October - WB adopts Order No. R1-2012-0087, Green Diamond Resource Company WDR for Forest Management, which includes South Fork Elk River management plan.

Elk River Hydrodynamic and Sediment Transport Modeling Pilot Project demonstrates reasonable results within a small pilot reach in Elk River supporting the proposed strategy in the Recovery Assessment.

Regional Water Board staff, with RCAA, co-sponsor Elk River Restoration Summit concluding 1) there is broad support for the Recovery Assessment, 2) funding with planning grants is difficult due to the size of the project and funding with implementation grants is premature, 3) there are opportunities for partnerships with landowners, public agencies, and non-profits, 4) the cleanup and abatement account is an appropriate funding source.

CalTrout is identified as a viable, ready, and willing entity to lead implementation of recovery actions in Elk River. Regional Water board staff and CalTrout pursue funding for the Recovery Assessment, including diverse cost-shares.

2013:

April - Draft Staff Report to Support the Technical Sediment TMDL for the Upper Elk River (Peer Review Draft) submitted for scientific peer review

August - Update on the Development of the Upper Elk River Technical TMDL and Implementation Program

2014:

May – Elk TMDL RWB workshop in Fortuna

June - Informational Item and discussion with Board Members on Draft Elk River TMDL

2015:

May – RWB postpone enrollment of THP 1-12-110 HUM Unit 1 due to proximity to impacted reach and concerns over increased sediment discharge.

September – HRC submits complete report of waste discharge for their Elk River ownership

November – Board workshop on draft Upper Elk River Technical Analysis for Sediment and draft Order No. R1-2016-0004, WDRs for HRC.

December – Public comment period for draft Order No. R1-2016-0004 and draft Elk River TMDL Action Plan Basin Plan amendment.

2016:

February – Staff workshop on Elk River TMDL