Regional Water Quality Control Board
North Coast Region

Executive Officer's Summary Report
1:00 P.M., Wednesday, May 07, 2014
River Lodge Conference Center
1800 Riverwalk Drive
Fortuna, California

ITEM: 1

SUBJECT: Upper Elk River TMDL and Waste Discharge Requirement Update (Adona White & Holly Lundborg)

BOARD ACTION: This is an informational workshop to update the Board, responsible parties and other interested persons on the development of the Upper Elk River Total Maximum Daily Load (TMDL) and the Waste Discharge Requirements (WDR) for the control of waste discharges from timberlands in the Upper Elk River watershed. No formal action will be taken by the Board. This is an opportunity for the Regional Water Board members to provide policy direction to staff to inform the strategy for implementing the TMDL/WDR.

BACKGROUND: Staff has developed a draft TMDL Staff Report for sediment for the Upper Elk River. It has been submitted to scientific peer reviewers and was made directly available to interested stakeholders and to the public via the Regional Water Board website[1] in July 2013. The fundamental scientific assertions, findings and conclusions of the draft TMDL Staff Report, including the soundness of the scientific knowledge, methods, and practices, were supported by the peer reviewers. Staff's complete responses to peer review comments are posted on the Elk River TMDL website. Staff has met with numerous stakeholders to brief them on the content of the draft TMDL and to solicit input. Staff has also received informal written comments on the draft TMDL Staff Report from various stakeholders and those comments are posted on the TMDL website. The draft TMDL Staff Report is currently being revised and updated in response to scientific peer review and stakeholder comments.

Simultaneously, a WDR is being developed to implement the TMDL. A draft WDR has not yet been released for public review, pending input from the Regional Water Board, responsible parties and other

[1] http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/elk_river/

stakeholders on several key policy issues. Staff's current intention is to release public review drafts of both the TMDL and WDR by October 2014 and bring the proposed documents to the Board for its consideration as a single action TMDL adoption in early 2015.

The agenda for the May 7, 2014 public workshop is included as an attachment. The purpose of the workshop is to outline a proposed TMDL implementation strategy, to introduce a number of policy issues requiring discussion, and to seek input from the Board and stakeholders regarding their resolution. The context for this discussion is defined in part by the requirement under Section 303(d) of the Clean Water Act to assure timely compliance with the TMDL and attainment of water quality objectives.

The Upper Elk River watershed is underlain primarily by highly erodible, fine-grained, unconsolidated geology, which under old growth forest conditions appears to have remained well-anchored. Alteration to the forest composition over time has exposed the sensitive geology to accelerated rates of erosion, expanded and destabilized the drainage network, altered the sediment loading, and caused impacts to particularly vulnerable areas. Significant landscape disturbance from timber operations in the 1980s and 1990s, in combination with large storms, finally overwhelmed the capacity of the system to transport sediment, resulting in accumulation of instream deposits which continues today.

In 1986, Maxxam, Inc. took over the Pacific Lumber Company and Scotia Pacific Company (Palco) and began accelerating logging activities, causing increased impacts to the environment, numerous regulatory and judicial battles, and considerable local protest. Since 1997, excess sedimentation has caused impairments to multiple beneficial uses, including the cold water fishery, domestic water supplies, and agricultural water supplies. Excess sedimentation has caused an increased incidence of flooding in a manner which meets the definition of nuisance under the Porter-Cologne Water Quality Control Act, resulting in permanent or temporary loss or reduced use of both private and public property, as well as risks to the health and welfare of the local community.

In 2007, Palco filed for Chapter 11 bankruptcy and in 2008, the court confirmed the reorganization plan submitted by Mendocino Redwood

Company (MRC). California State agencies (including the Regional Water Board) and the Governor strongly supported MRC's plan because of the company's knowledge, experience, and proven track record of environmental compliance. The MRC Plan specifically requires compliance with all environmental laws and environmental obligations as if no bankruptcy was filed. Therefore, the Humboldt Redwood Company (affiliated with MRC) now "stands in the shoes" of Palco for its roles and responsibilities in the Elk River watershed.

Both HRC and Green Diamond Resource Company (GDRC) currently operate under federal Habitat Conservation Plans, Incidental Take Permits, and Forest Stewardship Certification (FSC). Bureau of Land Management manages the Headwaters Forest Reserve in accordance with the Headwaters Forest Resource Management Plan. HRC, GDRC, and BLM have made substantial progress toward treating stream crossing and road sites with the potential to discharge sediment, as well as implementing other important landscape and watercourse protections. Considering the current sensitivity of the system to erosion and sediment loading, the peer reviewed draft TMDL has identified that both a reduction in hillslope sediment loads and remediation of instream deposits are necessary to address beneficial use impairments, including fisheries and water supplies, and nuisance flooding conditions in Upper Elk River.

ISSUES: The key policy issues of primary interest on which staff is seeking input from the Board, affected parties, and other stakeholders include:

1. RATE OF HARVEST/PROTECTION OF SENSITIVE AREAS - Given the on-going sediment-related impairments in the Upper Elk River watershed relating to elevated suspended sediment concentrations and continuing deposition of sediment within the stream channel and on the floodplain, what operational controls should the Regional Water Board require to ensure a timely reversal of impacts to beneficial uses and nuisance conditions, recovery of hydrologic function, and rehabilitation of the aquatic ecosystem? In particular, should the WDR include a rate of harvest limitation? If so, at what level and in which locations on the landscape should a harvest rate apply? Some options include:
    a. At the ownership level to provide landscape-wide protection from cumulative impacts; or,

b. In areas identified in the TMDL as especially vulnerable to landscape disturbances (e.g., headwater catchments, landslide prone areas).

2. TIME SCHEDULE - Given the length of time over which sediment-related impairments have occurred and the varying ease or difficulty of controlling different sediment sources, what is an appropriate time schedule by which to expect control of each of the major sediment source categories, including cumulative impacts?

3. PRIVATE INVESTMENT IN RECOVERY ACTIONS - Given the fundamental importance of remediation of sediment deposits in the Elk River to the system's ecological rehabilitation (including recovery of its hydrologic function) and attainment of the TMDL, how should the TMDL implementation strategy be structured so as to ensure adequate funding for the necessary recovery actions? Should the Regional Water Board require private investment into the design, permitting and implementation of recovery actions? And if so, is the sediment offset mitigation program described below an appropriate means to achieve this?

4. CAUTIONARY APPROACH, ADAPTIVE MANAGEMENT - Given the inherent uncertainty associated with: a) the quantification of a system's assimilative capacity for sediment under variable climatic conditions; b) sediment source loading rates of past, present, and future management actions; and c) the interaction of sediment loading and instream response; how does the Regional Water Board best manage short- and long-term risk to beneficial uses and the local community? In particular, how are short-term risks best managed given that remediation of instream stored sediment will not physically occur until a feasibility study, remediation action plan, and permits are completed and sufficient funds are raised?

DISCUSSION: DRAFT UPPER ELK RIVER TMDL AND PROGRAM OF IMPLEMENTATION

The peer reviewed draft TMDL identifies two general categories of management-related sediment loading in the system: upslope loads and instream loads. The current upslope loads are calculated as approximately 15% of the total, while the instream stored sediment in the depositional reach of the Upper Elk River watershed accounts for approximately 85% of the system's excess load. The Draft TMDL finds

that the assimilative capacity of the Elk River is consumed by the existing instream stored sediment and that additional sediment discharges add to the impaired status and nuisance condition. The TMDL considers the likely time frame necessary to control the different loads and identifies a schedule of 5 to 20 years for the upslope sources and a 10-year time frame to remediate/remove the instream deposits.

There are multiple potential strategies to implement the TMDL and achieve attainment of water quality standards of Elk River. Under one implementation framework (call it Alternative #1), a WDR would be used to control ongoing discharges and a Cleanup and Abatement Order (CAO) would be issued to force the remediation of ongoing and deposited sediment waste discharges. As an alternative to that framework, the peer reviewed draft TMDL Staff Report laid out a conceptual curve in which the allowable rate of timber harvest would start at near-zero and be increased (up to a sustainable rate) as the sediment loads (upslope and instream) were reduced over time. This alternative framework (call it Alternative #2) was identified as a cautionary approach and was recommended in the peer review draft TMDL staff report to encourage upslope operators to invest in instream sediment remediation without the Regional Water Board issuing an order to do so. Regional Water Board staff is in the process of developing an alternative implementation strategy (Alternative #3) which is discussed below and will be the focus of staff's presentation at the May 7, 2014 workshop.

UPPER ELK RIVER TMDL IMPLEMENTATION STRATEGY (Alternative #3)
Implementation Strategy Alternative #3 involves three main components: 1) a WDR, 2) Restoration via remediation of accumulated sediment in the channel, and 3) Stewardship. This alternative is depicted in Figure 1 (attached) and described in the text that follows. As depicted, the implementation strategy builds on the TMDL as its foundation. As currently contemplated, the Regional Water Board would be asked to consider adoption of the TMDL and WDR simultaneously. The Stewardship element, discussed in more detail below, supporting coordinated monitoring and restoration planning, permitting, and implementation, is voluntary but critical to successful attainment of the TMDL.

1. WDR – The Upper Elk River WDR for Timberlands is proposed to control the discharge of all non-point sources of waste from all

timberlands within the boundary of the Upper Elk River watershed and would apply irrespective of timber harvest operations. As proposed, the Upper Elk River WDR would consolidate the Regional Water Board's existing regulatory vehicles (e.g., WDRs and CAOs[2]) and update the findings and requirements so as to be consistent with the load allocations and targets as finalized in the TMDL.

Under this alternative, each of the primary timberland owners would be asked to develop a plan for managing their land in a manner which complies with the TMDL. The management plans would be attached to and incorporated by reference in the WDR as enforceable conditions. Any gaps in water quality protection, or necessary measures to meet the five key elements in non-point source plans, would be addressed by additional management measures in the WDR. The proposed WDR and its attachments would be subject to public review prior to approval by the Board. Staff proposes that the WDR be applicable for a set term, on the order of 5 years, so as to ensure its appropriate adaptation to new and emerging science and information. Especially important will be the results of full-scale hydrodynamic and sediment transport modeling that is to occur under the Elk River Recovery Assessment (as described below).

Key to this alternative, and in accordance with a dramatically reduced assimilative capacity of the Elk River, is the proposal to include a sediment mitigation offset program in the WDR. The general concept is that in order to authorize ongoing sediment discharges to a system that is recognized as having little-to-no assimilative capacity, permitted discharges must be offset by instream sediment remediation activities which ultimately will serve to increase the system's assimilative capacity. As applied during the first five-year term of the WDR, the idea would be that while a sediment remediation action plan was being developed, mitigation offsets associated with sediment discharges under the WDR could be in the form of funds banked for use once the Elk River Recovery Assessment is complete and feasible restoration actions have been identified and designed. The ratio for the offset will need to be developed, and could be based on percent of land ownership, intensity of land disturbance from current management, or some

[2] CAO 98-100, which requires HRC to provide alternative water supply to residents in the impacted area will continue to be implemented and be addressed outside the TMDL/WDR process.

other combination of factors. As discussed below in the restoration discussion, staff does not expect the entire cost of remediation to be carried by timber operators; the effort will be achieved through a combination of public and private contributions.

An offset mitigation program must be accompanied by a clear strategy for managing the risk to beneficial uses and the downstream community in the period prior to actively engaging in instream sediment remediation. Based on the monitoring data and assessment of conditions in the Upper Elk River, staff has determined that under no scenario could management-related sediment discharge be reduced to zero. This is in large part because implementation of other state and federal requirements on timberlands in the Upper Elk River watershed will require potentially significant road improvements over the next five years to be in conformance with requirements contained in approved HCPs and management plans. In addition, the management history has altered the landscape (e.g. management-induce extended stream system, elevated sediment loads associated with management-related in-channel sources) and some amount of management-related sediment discharges will continue.

Staff recommends that the WDR incorporate, at a minimum, the following risk management strategy elements: a cap on timber harvest rate across the Upper Elk River watershed to address cumulative impacts; limitation on management activities in especially sensitive areas (e.g., riparian areas, headwater catchments, areas with elevated landslide hazard, etc.); and road-related sediment minimization measures including drainage, surfacing, filtration, and use controls. The existing WDR and management strategies on Upper Elk River timberlands address these elements but need to be enhanced in the revised WDR.

2. RESTORATION - The Regional Water Board and other entities have long been concerned about the effect of sediment aggradation in the Upper Elk River on beneficial uses and the local community. Of additional concern has been the potential to transfer the nuisance downstream or otherwise increase the nuisance by undertaking ill-informed action. As such, the Regional Water Board, other permitting agencies, and funding entities have identified that actions taken to remediate the instream deposits need to be based on a

scientifically sound plan with a demonstrated high likelihood of success which also avoids unintended consequences. A Restoration Summit, held in February 2012, publicly vetted the Elk River Recovery Assessment (Recovery Assessment) for which the Regional Water Board has now secured funding from the State Water Board's Cleanup and Abatement Account with matching funds from partners, including HRC, Redwood Community Action Agency, and the California Coastal Conservancy. The contract for the Recovery Assessment is pending with California Trout and includes full-scale modelling of the geomorphic and hydraulic conditions and controls from the top of the depositional reach to Humboldt Bay, with the ability to test various restoration scenarios for their effect on local and reach-wide conditions. The analysis will consider sediment concentrations over a range of flows, their reduction over time, and their interaction with channel and overbank sediment, vegetation, and infrastructure conditions.

The Recovery Assessment, proposed for completion by the summer of 2017, will result in the development of a restoration implementation framework that includes specific recovery actions as well a strategy to accomplish them. This effort is a critical component to support and guide individual and coordinated restoration efforts. The Recovery Assessment has garnered broad support in concept, in in-kind efforts, and in cash contributions from several watershed partners. Associated with the effort is the design and implementation of a pilot scale mechanical sediment removal project to inform the costs and logistics associated with a larger sediment removal effort, as well as allow comparison of the predicted outcome (i.e., modelled outcome) to the actual performance of sediment removal actions.

The Recovery Assessment will broadly inform restoration actions, sequencing, and maintenance. From this, specific designs will need to be developed and the necessary permits acquired to implement the designs. Collaboration amongst multiple private and public stakeholders has thus far been very successful in the development and funding of the Recovery Assessment. The time may be ripe to convene a formal stewardship group which can take responsibility for raising the necessary funds and acquiring the necessary permits to implement the recovery actions. The sediment mitigation offset

program, as described above, is envisioned as one potential source of funding to accomplish this goal.

3. STEWARDSHIP – A watershed stewardship partnership is a partnership among private and public entities in service of the restoration of watershed conditions in a manner which serves the interests of all the partners. Specific to the Elk River watershed, a watershed stewardship partnership could identify and address the needs and common interests of watershed partners and coordinate on monitoring to drive refinements to the management measures in the WDR, track improving trends in water quality, and inform refined TMDL endpoints. Further, this stewardship partnership could pursue efforts to remediate the instream deposits, including planning, permitting, securing funding, and implementation. Numerous potential partners can readily be identified, including collections of individuals and landowners, permitting agencies, funders, non-profits and agencies capable of securing grant funds. Many partners have already contributed to the Recovery Assessment, either through participation in the Restoration Summit or as collaborators/funders of the Recovery Assessment itself. Important to the success of such a group will be the identification of a neutral lead entity capable of coordinating the stewardship group and facilitating partners' interests.

   The Stewardship model, as applied in other watersheds, including the Shasta and the Klamath River basins, has proven successful. The model includes the following basic steps: Build Partnerships, Characterize the Watershed, Identify Problems and Develop Solutions, Implement, and Measure and Evaluate Progress. While efforts in Elk River have worked toward many of these steps through TMDL development, existing monitoring programs, and the Recovery Assessment and restoration strategy development, a formal Stewardship group has not yet been established. Staff believes that a concerted effort toward stewardship partnering in a cooperative manner could make significant headway to accomplishing long-needed remediation of the instream deposits and ensure that monitoring will be done in a coordinated, transparent manner, and in a manner that transcends individual interests.

CONCLUSION: Upper Elk River is a unique watershed with unique physical conditions (i.e., geology, morphology, vegetation, location in Humboldt Bay), an important fisheries resource, and a long history of timber harvest and residential and agricultural uses. Sediment-related cumulative effects have exceeded the system's resilience. Aggressive and coordinated source controls and instream remediation are warranted. The TMDL implementation strategy described in this report and to be discussed at the May 7 workshop is intended to balance watershed disturbance, sediment source controls, and recovery of the river for fisheries, water supplies, and flooding. The development of this TMDL has taken longer than envisioned; meanwhile sediment impacts have worsened in key reaches of the watershed and timber harvest operations are ongoing. Improved information about watershed conditions and strategies to control sediment discharges are inevitable, and the TMDL implementation strategy builds in mechanisms to incorporate refinements to management and recovery actions. Public and Board discourse on key policy issues is warranted at this time, and timely resolution is needed to ensure successful implementation of the TMDL.

SUPPORTING DOCUMENTS:

1. Figure 1 - Alternative #3 Upper Elk River TMDL implementation strategy
2. May 7, 2014 Upper Elk River TMDL and WDR Workshop Agenda

ATTACHMENT 1

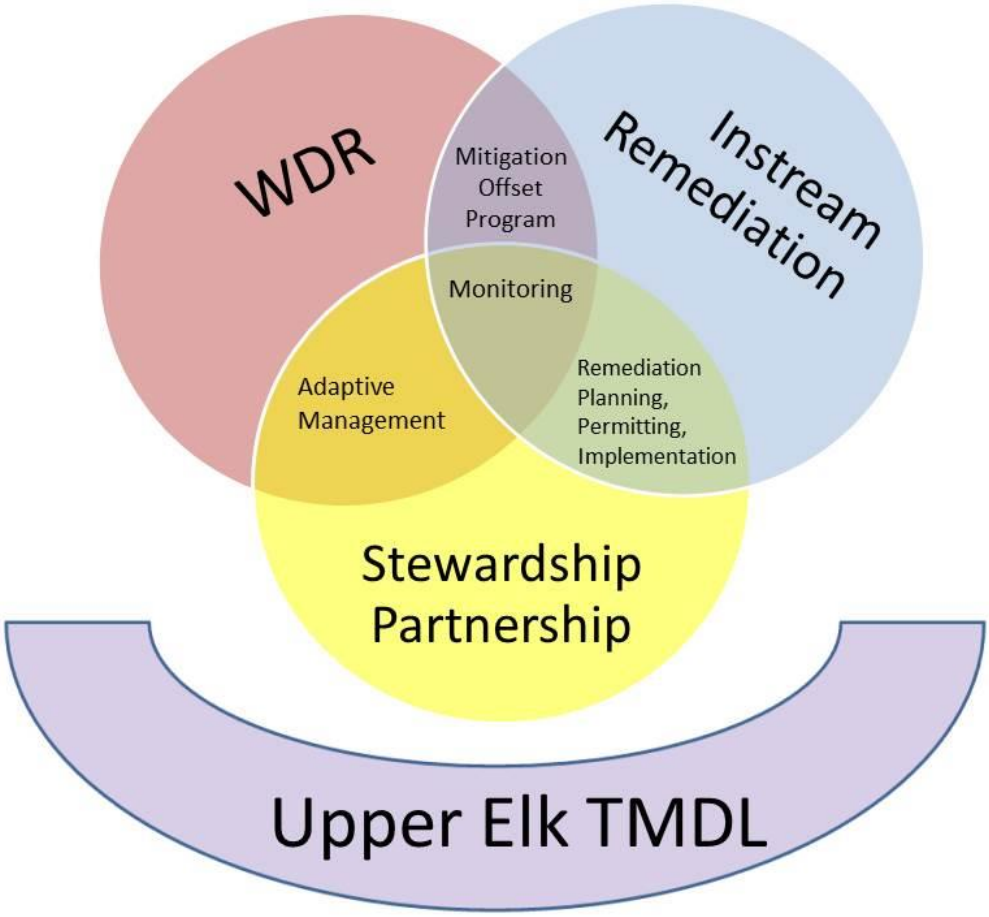


**Figure 1. Alternative #3 Upper Elk River TMDL implementation strategy.**

ATTACHMENT 2

WORKSHOP AGENDA
Upper Elk River TMDL and WDR
May 7, 2014

I. Staff Presentation [1:00 to 2:15 pm]
II. Affected Parties Presentations [2:15 to 3:45]
III. Break
IV. Board Discussion [4:00 to 5:00]
V. Meeting Adjournment [5:00]