Regional Water Quality Control Board
North Coast Region
Staff Summary Report
August 16, 2024

ITEM: 5

SUBJECT: Update on implementation of Order No. R1-2019-0021, 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 (Elk River WDR) including harvest activity limits in high-risk areas and riparian zone protections (Jim Burke, invited presenters: Humboldt Redwood Company)

BOARD ACTION: This is an information item only; no action will be taken by the Regional Water Board.

BACKGROUND: The purpose of this information item is to provide an update to the Regional Water Board on implementation of the existing Elk River WDR, and to provide the Board an opportunity to consider comments on requirements including harvest activity limits in high-risk areas and riparian zone protections and to provide staff direction on potential changes to those requirements. In the absence of changes to the Order, harvesting in high-risk areas for the period beginning five years after the adoption of the Order shall be limited to 482.7 acres of the “Tommy” Timber Harvest Plan (THP), 1-24-00040 HUM, which the California Department of Forestry and Fire Protection approved on June 11, 2024.

Humboldt Redwood Company (HRC) owns approximately 22,200 acres of timberland in the Upper Elk River Watershed (approximately 66% of the watershed). Nonpoint source pollution from HRC’s timber harvesting and associated activities are regulated by waste discharge requirements that are a key component of the program of implementation of the Elk River Sediment TMDL Action Plan (TMDL Action Plan). The Elk River WDR, adopted by the Regional Water Board on June 19, 2019, establishes requirements for implementation of stringent management practices to prevent or minimize sediment discharge from the following categories:

- Harvest acreage limits
- Limited harvest in high risk subwatersheds
- Limited harvest in riparian management zones
- Road management
- Landslide prevention measures
- Wet weather operations

Section I.A.4 - Harvesting in High-Risk Areas

The Elk River WDR establishes specific requirements for High-Risk Areas, identified as areas dominated by the Hookton Formation within portions of the six subwatersheds in the Upper Elk River watershed. Findings 63-65 and section I.A.4 of the Elk River WDR describes harvest limitations that apply to these High-Risk Areas.

For the first five-year period following adoption of this Order, timber harvesting activities on HRC's timberlands in the high-risk areas were limited to one THP.

The Elk River WDR specifies that, at the required update to the Regional Water Board no later than five years from the date of adoption of this Order, the Regional Water Board will consider the Order conditions limiting harvest activities in high-risk areas, and after public notice and comment will provide staff direction on potential changes to the harvest limitations. Any changes to this Order regarding harvest limitations in the subsequent five-year period or beyond shall consider available data and information to assess watershed conditions, including beneficial use recovery in the impacted reach[1], and shall be subject to a 30-day review and public comment period and Regional Water Board hearing.

Riparian Zone Protection

Section I.B of the Elk River WDR establishes the following requirements for riparian zone protection throughout HRC's timberlands in the Upper Elk River (UER) and are designed to ensure that HRC's management activities shall be conducted so as to implement the following TMDL hillslope indicators and numeric targets associated with watercourses and riparian zones:

- HRC shall implement their Habitat Conservation Plan (HCP) Riparian Management Zone (RMZ) prescriptions for riparian protection as specified in the ROWD
- Retain a minimum of 50% post-harvest forest overstory canopy cover well distributed throughout the area within 300 feet from Class I and II watercourses and 150 feet from Class III watercourses, or to the first hydrologic divide. No group selection harvest method allowed within these areas, with the following exception; Group selection may be used on slopes less than 30% between 150 and 300 feet of Class I and II watercourses with the written approval of the Regional Water Board Executive Officer.
- With the exception of existing roads and to access permitted watercourse crossings, no use of ground-based equipment shall occur within:

[1] The impacted reach extends from the confluence of Browns Gulch on North Fork Elk and Tom's Gulch on South Fork Elk downstream to the mainstem Elk River to Berta Road.

  - 150 feet of a Class I watercourse;
  - 75 feet of a Class II watercourse;
  - 50 feet of a Class III watercourse, or to the closest hydrologic divide;

- No later than five years from the date of adoption of this Order, the Regional Water Board will consider the Order requirements for riparian zone protection and after public notice and comment will provide staff direction on potential changes to the requirements.

Riparian Zone Protection in High Risk Areas

In addition to all of the requirements from above, section I.C establishes the following additional requirements for riparian zone protection in high risk areas:

- Class II Watercourse Riparian Protection
  - Between 30 feet and 200 feet or to the hydrologic divide of Class II watercourses, retain a minimum of 60% post-harvest canopy coverage.

- Class III Watercourse Riparian Protection
  - No harvesting within 20 feet of Class III watercourses; and
  - Between 20 feet and 100 feet or the hydrologic divide of Class III watercourse, retain a minimum of 70% post-harvest conifer canopy coverage.

Discussion – Since the WDR was drafted eight years ago, Regional Water Board staff's understanding of watershed response to our regulatory actions has evolved largely due to additional information including the completion of the 2019 Elk River Recovery Assessment, an identified component of the Elk River TMDL Action Plan. Based on technical information, it is evident that downstream response to inputs controlled through the WDR will take a much longer timescale than originally contemplated and will benefit from a multi-faceted approach that incorporates regulatory controls, active restoration projects, and supplemental sediment removal. This view is supported by the technical conclusions in the Elk River Recovery Assessment. It is important to note that while Regional Water Board staff has actively led and/or participated in developing regulatory controls and planning active restoration projects, permits to remove in channel sediment must be obtained and the work approved by additional state and federal agencies. Sediment removal cannot be permitted or undertaken by the Water Boards in isolation.

As such, staff believe that it is appropriate to view watershed conditions from two separate perspectives, 1) the effectiveness of sediment control measures implemented pursuant to Regional Board Orders (Including the Elk River WDR) and, 2) in-stream conditions in the impacted reach.

Upslope Sediment Control

Regional Water Board staff conduct robust oversight of HRC's activities covered under the Elk River WDR, including participation in the THP review and approval process, field inspections of every THP (preharvest, active, and termination), and office review of monitoring reports. Regional Water Board staff have observed that when fully and properly implemented, WDR requirements for harvesting and associated activities on HRC's timberlands, including both identification and treatment of legacy sediment sources as well as greatly improved logging practices, are effective at reducing management related sediment discharge and controlling all controllable sediment sources.

It should be noted, however, that Regional Water Board staff have recently observed occurrences of discharge, or threatened discharge, of road related sediment on HRC timberlands in the Elk River Watershed, due largely to failure to fully implement road related requirements. Regional Water Board staff have communicated our observations and concerns to HRC personnel following each occurrence. On June 18, 2024, the Regional Water Board issued a Notice of Violation to HRC for failure to fully comply with road related requirements of the Elk River WDR.

HRC staff have informed Regional Water Board staff that the company acknowledges and is working to correct the observed problems and has since hired a new road manager. Regional Water Board staff will work with HRC and other review team agencies (CalFire, California Department of Fish and Wildlife, and California Geological Survey) to ensure that the road-related issues described in the Notice of Violation are adequately addressed and consistent with the WDR, controllable sediment discharge is prevented or minimized to the extent feasible. Although the Regional Water Board has documented some road-related discharges of sediment, it should be noted that the volumes of sediment are not believed to be of a magnitude that would exacerbate downstream flooding, but rather, has resulted in some elevated discharges of fine sediment to waters of the state.

In March 2024, HRC submitted the "Tommy" THP, which is located in the high risk area of Elk River. Designed to be consistent with the requirements established under the 2019 WDR for harvesting in the high-risk areas, the THP would be eligible for coverage under the Elk River WDR as of June 19, 2024. Regional Water Board staff attended the preharvest inspection for the plan on April 17, 2024, and CalFire approved it on June 11, 2024. On June 4, 2024, HRC submitted an application for enrollment of the Tommy THP in the Elk River WDR.

Due to HRC's recent failure to fully implement road-related requirements of the Elk River WDR as documented in the Notice of Violation, and the location of the Tommy THP within the high-risk areas, the Regional Water Board Executive Officer denied coverage under the Elk River WDR for the Tommy THP on June 18, 2024. On or before September 1, the Executive Officer will evaluate whether HRC has demonstrated

improved compliance with road related requirements and will reconsider whether to enroll the Tommy THP under the Elk River WDR.

Railroad Gulch Paired Watershed Study

Perhaps the most direct evidence on the effectiveness of limitations in high risk areas is the paired watershed study in Railroad Gulch. Railroad Gulch is a sub-basin of the Lower South Fork Elk River, located entirely within the high-risk area. Railroad Gulch consists of an East Branch and West Branch, each covering comparable areas. Nearly half of the East Branch is covered by the McCloud-Shaw Timber Harvest Plan (THP), which was the one THP allowed under the WDR to be operated on in high-risk areas during the first 5 years after WDR adoption. No timber activities have been conducted in the West Branch since 2003, allowing it to serve as the control watershed. The similar geology and terrain and isolation of timber harvesting to just one branch make Railroad Gulch a suitable location for a paired-watershed study. The objective of the study was to collect and evaluate specific sediment production, storage and delivery data to test the effectiveness of Order requirements in limiting sediment production and delivery from potential sources related to management practices. Harvesting was conducted according to the current WDR requirements.

A wide range of data were collected and analyzed for the Railroad Gulch study, including stage, continuous and storm turbidity measurements, road erosion, landslide characteristics, channel cross-sections, bed material size, and isotopic analysis of millennial scale erosion rates. In general, the study found annual sediment loads showed steep responses to increased annual rainfall but it is likely that a portion of the elevated sediment load in the treated East Branch watershed resulted from roading and harvest. However, in the absence of raw data underlying the study, more detailed descriptions of how authors arrived at specific conclusions and because of the presence of several confounding factors, Regional Water Board staff were unable to fully support the conclusions presented in the report.

In-Stream Conditions

HRC conducts the following water quality monitoring:

- Aquatic trends monitoring (ATM) of Class I stream habitat at seven locations for channel substrate (pebble counts), pools, large wood, riparian canopy, water temperature, fish surveys, and channel cross sections; and

- Hydrology and suspended sediment trends monitoring at nine locations throughout UER for discharge, and suspended sediment concentration.

Aquatic Habitat Trends data provide useful information for tracking watershed conditions related to sediment distribution and movement. ATM data from seven locations throughout the watershed and data was compared to Aquatic Properly Functioning Conditions. Sites in the upper watershed are either at, or nearing, desired

conditions for sediment related Aquatic Properly Functioning Condition[2] parameters. However, sites downstream, specifically in the impacted reach, are far from desired conditions for sediment related parameters. Over the past five years, sediment related parameters in the impacted reach have shown a slight trend toward desired conditions. Continued monitoring over the coming years will provide useful information as to any continuing trends.

ATM data is compared to desired condition thresholds defined by the Aquatic Properly Functioning Conditions matrix. ATM parameters vary spatially throughout the watershed as well as temporally. Some ATM parameters are doing well compared to Aquatic Properly Functioning Conditions benchmarks and are either above or trending towards desired conditions. For example, canopy cover and stream temperature are within the Aquatic Properly Functioning Conditions desired conditions for all ATM sites and are not of concern at this time. However, temperature data was only collected once each year, so a greater resolution of data would provide useful information as to the effectiveness of canopy cover improving stream temperature conditions. The Regional Water Board's Temperature Policy highlights the importance of shade to stream temperature, but multiple additional influences on stream temperature can also be important. Other ATM parameters that are doing well compared to Aquatic Properly Functioning Conditions benchmarks include upstream substrate parameters, which are either achieving or close to achieving desired conditions.

However, downstream sites, specifically those within the impacted reaches (ATM175 and ATM166), are much further from desired conditions for these same parameters. ATM 175 is located along the South Fork Elk River above the confluence of the North Fork Elk River, and ATM 166 is located along the main stem below the confluence (Figure 10). For both stations, ATM parameters that are either achieving, or close to achieving desired conditions include all pool characteristics, stream temperature, and canopy cover, based on the two monitoring events reported in the 2016-2021 period. Median particle diameter (D50) of the stream bed surface shows a slight coarsening trend, however, the 2020 D50's (ATM 175 = 6mm; ATM 166 = 7mm) are still far from the Aquatic Properly Functioning Condition target (65-95mm) (Figure 11). A positive trend suggests a slight coarsening of substrate particle size. A greater number of temporally spaced samples above and within the impacted reach would allow testing of statistical significance of trends for these parameters and whether data will reach desired conditions within the lifespan of the Habitat Conservation Plan (HCP).

Suspended sediment concentrations (SSC) trends analysis performed for the 2022 TMDL 5-Year Review was extended using data for water years 2021 through 2023. Regional Water Board staff analyzed data from all active hydrologic monitoring stations (509, 510, 511, 517, 522, 532, and 535). The entire station-specific model ensembles

[2] This condition, as defined by NMFS, is essential for the long-term survival of anadromous salmonids and is identified in a matrix with habitat variables necessary to achieve this goal.

show statistically significant (α = 0.05) decreasing residual SSC trends for stations 509 (mainstem below confluence), 511 (North Fork above confluence), and 517 (Bridge Creek). Station 510 (South Fork above confluence) had mixed results where only two models had statistically significant decreasing trends with one other model very close to the significance level (p-value ≈ 0.06). This analysis yielded no statistically significant linear time trends for stations 522 (Corrigan Creek), 532 (North Fork below McWhinney Creek), and 535 (Little South Fork).

Conclusion

The existing Elk River WDR establishes rigorous requirements for all aspects of HRC's timber harvesting and related activities designed to control management related sediment discharge and implement the TMDL Action Plan. In spite of recent issues related to compliance with road-related requirements, in general, HRC has displayed a good record of compliance with the Elk River WDR. Regional Water Board staff conduct robust oversight of HRCs operations and have observed no, or minimal, sediment discharge where applicable requirements of the Elk River WDR are fully implemented. Non-compliance with road-related requirements is being addressed through our existing regulatory tools, on-the-ground inspections, and direct communication with HRC and CalFire.

In-stream conditions as informed by aquatic trends and suspended sediment monitoring show some preliminary improvements in indicators of excess sediment. While these data can provide no clear correlation between permitted timber harvesting activities and in-stream response, conditions are not getting worse during the time period that extensive forest management has been occurring. Impaired conditions in the impacted reach remain essentially the same as they've been for many years, resulting in continued loss of residents' ability to utilize drinking water from the river and nuisance flooding conditions that impact their properties and public safety. The Elk River WDR is the most protective timber harvest permit in the state and staff believe that the WDR, as written, is providing appropriate water quality protections for timber harvest activities in the upper watershed. It is unlikely that improvements to conditions in the impacted reach can be attained by imposing even more stringent permit requirements for timber harvesting activities in the watershed.

Regional Water Board staff believe that the greatest likelihood of achieving improvements in the impacted reach lies with the larger, community involved Elk River Stewardship Program. While the Regional Water Board has a dedicated staff to coordinate Stewardship efforts, the actions and authorities needed to address sediment impacts in the Elk River watershed require the combined efforts of numerous federal, state, and local agencies, NGOs, and stakeholders. The Stewardship Program is a community-based approach under which implementation of health and safety projects, remediation and restoration activities, and science and coordinated monitoring serves to support beneficial use enhancement. It aims to provide a framework for coordinating sediment source control and restoration actions, while also partnering with other

essential organizations with authority to address health and safety protections. In addition to ongoing involvement with watershed restoration actions led by CalTrout and guided by the Elk River Restoration and Recovery Plan, the Regional Water Board has funded Humboldt County to complete an engineering, or Project Study Report (PSR), for Elk River Road flooding in the impacted reach. The PSR will identify design options, workplans and feasible projects, at the three main flooding locations- Elk River Road at Zanes Road, Berta Road, and the area referred to as the Flood Curve. Developing recommendations for road access is consistent with Table 4 of the TMDL Action Plan. Because the Regional Water Board does not have road authority, the Stewardship Program allows for a collaborative approach to address the health and safety concerns that Elk River Road flooding poses. The Regional Water Board is also in the process of funding and completing a competitive bid process for the siting of a Science and Coordinated Monitoring (SCM) Workgroup, which is also consistent with the TMDL Action Plan. The SCM workgroup will help to develop monitoring activities designed to assess overall water quality conditions and inform adaptive management. Additional information on the Stewardship Program is provided in the Upper Elk River Sediment TMDL Five Year Staff Assessment presented to the Board in August 2022.

If the Board does not direct staff to reopen the Order, the existing requirements in the Elk River WDR will continue. That would entail maintaining the current riparian zone protections and limiting HRC's harvest in the high risk areas during the five year period from 2025 to 2029 to acreage specified in its 2015 Report of Waste Discharge, which would include the Tommy THP and up to 569.4 acres in Railroad Gulch, Clapp Gulch and Lower South Fork Elk River.

RECOMMENDATION:

Based on analysis of in-stream monitoring and on the ground observations, Regional Water Board staff find that the WDR establishes requirements that, when fully implemented, are effective at minimizing sediment discharge from HRC's timber harvesting and associated activities. Effective source control is a significant component of a strategy to achieve recovery of beneficial uses in the watershed. Staff believe that the combination of upstream source control (existing measures included in the WDR) and downstream recovery efforts (Stewardship Program) is the right path forward. As such, we recommend no changes be made to the Order at this time.

SUPPORTING DOCUMENTS:

1. Order No. R1-2019-0021
2. Notice of Public Hearing