



North Coast Regional Water Quality Control Board

STAFF REPORT

for

Proposed Regional Water Board Actions in the North Fork Elk River,
Bear Creek, Freshwater Creek, Jordan Creek and Stitz Creek Watersheds

by

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Executive Summary

During the winters of 1995/1996 and 1996/1997, significant cumulative adverse impacts to beneficial uses of waters within Bear Creek, Stitz Creek, Jordan Creek, Freshwater Creek, and the North Fork Elk River watersheds occurred from discharges of sediment from the lands owned by The Pacific Lumber Company, Scotia Pacific Company, LLC, and the Salmon Creek Corporation (hereinafter referred to as the Discharger). Staff of the Regional Water Board, the California Department of Forestry and Fire Protection (CDF), the California Department of Fish and Game, the California Division of Mines and Geology, and members of the public observed and documented these impacts to beneficial uses. Agency representatives determined that the Discharger's harvest and related activities contributed significantly to the documented adverse impacts. Technical reports submitted by the Discharger in response to various orders, requirements, and requests by the staff of the Regional Water Board and CDF confirmed staff's earlier observations, demonstrating that timber harvesting and related activities were associated with increased landsliding and sediment generation and deliveries. In order to mitigate these impacts, the Discharger was required by both the Executive Officer of the Regional Water Board and CDF to conduct watershed analyses and water quality monitoring, in order to identify past discharges, to prevent further discharges, and to confirm that remediation and prevention activities were resulting in restoration and protection of the impaired beneficial uses within these watersheds. Similar watershed analyses and water quality monitoring are required by the Discharger's Habitat Conservation Plan (HCP). To date, the Discharger has not adequately fulfilled these requirements. However, the Discharger is now proposing and conducting timber harvest practices at rates similar to or significantly higher than those employed prior to the 1995/1996 and 1996/1997 winters, which led to the previous and continuing impairment. The Discharger contends that interim prescriptions and other requirements of the HCP and the Forest Practice Rules provide added mitigation and adequate protection for any future impacts from its harvesting and related activities. In the Regional Water Board staff's judgment, the Discharger's timber harvest and related activities under the HCP and the Forest Practice Rules will not assure adequate protection of water quality standards (water quality objectives and beneficial uses). Therefore, Regional Water Board staff propose that in order to assure restoration and protection of the

impaired beneficial uses in these watersheds, the Regional Water Board should regulate the Discharger's activities using its authority under the Porter-Cologne Water Quality Control Act and the Clean Water Act, and require that the Discharger comply with the Basin Plan. The Regional Water Board staff have developed a range of alternative regulatory and enforcement options for the Regional Water Board to consider for the Discharger's activities in the Freshwater Creek, North Fork Elk River, Bear Creek, Jordan Creek, and Stitz Creek including a no action alternative. In April 2000, the Law Offices of Brecher and Volker LLP, on behalf of the Humboldt Watershed Council, petitioned the Regional Water Board to require Waste Discharge Requirements for the Freshwater Creek and Elk River watersheds.

I. Background

The Pacific Lumber Company, Scotia Pacific Company, LLC, and Salmon Creek Corporation are all subsidiaries of MAXXAM, Inc., and are hereinafter referred to as the Discharger. Approximately 211,700 acres in Humboldt County, California are owned by the Discharger, encompassing lands within 22 watersheds, including the Bear Creek, North Fork Elk River, Freshwater Creek, Jordan Creek, and Stitz Creek watersheds. The Discharger owns approximately 13,189 acres (92%) of the 14,336-acre North Fork Elk River watershed; 15,400 acres (77%) of the 19,892-acre Freshwater Creek watershed; 4,850 (95%) of the 5,120-acre Bear Creek watershed; 3,011 acres (98%) of the 3,072-acre Jordan Creek watershed; and 100% of the 2,587-acre Stitz Creek watershed. The portions of the four watersheds that are not owned by the Discharger are largely owned by numerous landowners with smaller parcels in the lower reaches of each watershed.

The Discharger conducts timber harvesting, forestry management, road construction and maintenance, and related activities on the lands within its ownership. During the decade from 1987 to 1997, the Discharger significantly increased the rate of timber harvest on its ownership over the rate of harvest which occurred during the period from 1974 to 1987 (Table 1)¹. During this period, the Discharger did not always comply with the provisions of the approved plans and/or the Forest Practice Rules (FPRs). From 1990 to 1997, the California Department of Forestry and Fire Protection (CDF) issued approximately 230 violation notices to the Discharger for activities on the Discharger's ownership. Of these 230 violations, 59 occurred in the Freshwater Creek watershed, 64 occurred in the North Fork Elk River watershed, 7 occurred in the Bear Creek watershed, and 54 occurred within the Eel River watershed (which includes the Jordan Creek and Stitz Creek watersheds). A summary of the violations is included in Attachment 1. Regional Water Board staff reviewed these violations and determined that a significant number of these violations of the minimum standards of the FPRs resulted in discharges or threatened discharges of sediment to receiving waters within these watersheds.

Corresponding with the increased rates of harvesting and other harvest-related activities, residents of these watersheds and Regional Water Board staff began noticing adverse impacts to surface waters and their beneficial uses within these watersheds, resulting from increased inputs of sediment. For example, the residents who were obtaining domestic and agricultural supply water from these watercourses began noticing increased silt in their drinking water and around their water intakes. Residents reported that water became very turbid even during minor storms, and the intensity and duration of flooding increased significantly. During the winters of 1995/1996 and 1996/1997, in particular during the latter winter, numerous large landslides occurred within these watersheds, delivering significant quantities of sediment to watercourses within these watersheds.

¹ Information contained in Tables 1 through 5 is gathered from the sediment reports: Sediment Source Investigation and Sediment Reduction Plan for Freshwater Creek Watershed, North Fork Elk River Watershed., Bear Creek Watershed and Jordan Creek Watershed, prepared by Pacific Watershed Associates (PWA). Stitz Creek information was gathered from the Natural Resources Management Corporation report: Stitz Creek Sediment Source Assessment and Sediment Reduction Recommendation.

Table 1. Rate of harvest for recent decade (1987-1997) and previous photointerpretive period (1974-1987).

| Watershed | Total Watershed Ownership (acres) | 1974-1987 | | | 1987-1997 | | |
|----------------------|--------------------------------------|--------------------------------------|------------------------|------------------|--------------------------------------|------------------------|------------------|
| | | Total Harvested Acres (ac/period) | Annual Rate of Harvest | | Total Harvested Acres (ac/period) | Annual Rate of Harvest | |
| | | | (ac/yr) | (% ownership/yr) | | (ac/yr) | (% ownership/yr) |
| Freshwater Creek | 15,400 | 2064 | 159 | 1.03% | 7,365 | 737 | 4.8% |
| North Fork Elk River | 13,189 | 932 | 72 | 0.5% | 5,035 | 504 | 3.8% |
| Bear Creek | 4,850 | 849 ² | -- ³ | -- ³ | 757 | -- ³ | -- ³ |
| Jordan Creek | 3,011 | 273 | 21 | 0.7% | 1,150 | 115 ⁴ | 3.8% |
| Stitz Creek | 2,587 | 1,250 ⁵ | 96 | 3.7% | 704 ⁶ | 70 | 2.3% |

II. Watershed Observations

A. North Fork Elk River

Based on field observations by staff of the Regional Water Board and CDF, the Regional Water Board issued Cleanup and Abatement Order No. 97-115 (Attachment 2) on September 23, 1997 for the North Fork Elk River watershed, requiring the Discharger to clean up and abate the sediment discharged to North Fork Elk River and its tributaries. In response to this Order, the Discharger submitted a cleanup and abatement plan, but also contended that large amounts of sediment had not been discharged to North Fork Elk River and its tributaries. The Discharger also filed a petition with the State Water Resources Control Board seeking review of Cleanup and Abatement Order No. 97-115 (Attachment 3). Regional Water Board staff disagreed with the Discharger's claim and informed the Discharger that it was the collective assessment of the staffs of the Regional Water Board, CDF, and the California Department of Fish and Game (DFG) that the North Fork Elk River had suffered cumulative significant adverse effects from past and present timber harvest activities, as evidenced by accumulations of fine and coarse sediment in watercourses. These accumulations resulted in significant filling of stream channel pools and the deterioration of water supplies over the winters of 1995/1996 and 1996/1997.

On September 22, 1998, the Regional Water Board issued Cleanup and Abatement Order No. 98-100 (Attachment 4) requiring, in part, that the Discharger restore the

² Bear Creek harvest data for 1974-1987 period was based on annual average rates of the 1966-1997 period (1892 acres) as well as information on percentage of watershed that was recently harvested (In 1987, 35% of watershed was recently harvested (1982-1997). Weighted averages were used between the periods (1974-1982) and (1982-1987).

³ Rate of harvest information on Bear Creek is not currently available based on the information presented in the PWA Report.

⁴ Jordan Creek rates of harvest varied during time period (1987-1994: 139 ac/yr, 4.6 %/yr; 1994-1997: 59 ac/yr, 2.0 %/yr)

⁵ Stitz Creek rate of harvest data includes: Mid 1970s – 1987: 1,250 acres harvested

⁶ Stitz Creek rate of harvest data: 1988-1993: 360 acres harvested; 1994-1998: 344 acres harvested

historic and potential domestic and agricultural supply beneficial uses of the North Fork Elk River and that the Discharger continue these abatement activities until the effects of sediment discharges decline to historic (prior to 1993) levels. Order 98-100 also required that the Discharger provide alternative water supplies for downstream water users. Order 98-100 superseded the portions of Cleanup and Abatement Order No. 97-115 that addressed water supplies.

Initially, the Discharger filed a petition with the State Water Resources Control Board seeking review of Order No. 98-100 (Attachment 5), but later agreed in a Stipulated Agreement (Attachment 6) to provide interim water supplies to the affected residents in the North Fork Elk River watershed and to develop a permanent solution to the impacted water supply issue. To date, the Discharger continues to supply water to the affected users on an interim basis. Regional Water Board staff continue to work with the Discharger in developing a permanent alternative water supply, but the Discharger has not yet developed or implemented a permanent solution to this problem. A recent survey of residents conducted by Regional Water Board staff shows that the vast majority of the residents would prefer restoration of the impacted North Fork Elk River watershed as a solution to their impacted water sources.

B. Bear Creek

During the Regional Water Board meeting on September 25, 1997 in Eureka, several members of the public expressed their concern over the filling of Bear Creek, Jordan Creek, and Stitz Creek with gravel, sediment, and organic debris from landslides and debris torrents, some of which originated from roads, landings, skid trails, and other logging-related features/activities. The Regional Water Board directed its staff to investigate these public complaints.

Stream damage to Bear Creek was documented by aerial photographs and in field inspection reports by the DFG, CDF, California Division of Mines and Geology (CDMG), and Regional Water Board staff. From these inspections and reports, Regional Water Board staff concluded that water quality standards were no longer being attained in significant portions of Bear Creek.

On October 23, 1997, the Regional Water Board's Executive Officer issued an order (Attachment 7) pursuant to Section 13267(b) of the Porter-Cologne Water Quality Control Act, requiring the Discharger to provide the following information:

- i. A sediment budget and inventory for the Bear Creek ownership.
- ii. A protocol for mitigating sediment production from future timber harvest activities by controlling sediment delivery identified in the sediment budget and inventory.
- iii. A monitoring program for the Bear Creek watershed to track the changes in stream morphology, fishery habitat, and water quality while the sediment control strategy is implemented in the watershed.
- iv. A time schedule for development and implementation of the sediment budget and control strategy and the monitoring plan.

C. Bear, Freshwater, Jordan, and Stitz Creeks and the North Fork Elk River

Regional Water Board staff and representatives of other agencies conducted additional field investigations of Jordan Creek, Stitz Creek, Freshwater Creek, and the North Fork Elk River. The CDF Director determined that a more aggressive approach to evaluating and mitigating cumulative impacts was needed in dealing with these significantly impacted watersheds. Following these inspections, the CDF Director requested the representatives of CDF, DFG, CDMG, and Regional Water Board meet to discuss cumulative watershed effects in Bear Creek, Jordan Creek, Stitz Creek, Freshwater Creek, and Elk River. During the meeting held on December 16, 1997, the group reached a consensus that all five watersheds had significant adverse cumulative watershed impacts, with timber harvesting a contributing factor. The group concurred that fish habitat had been adversely impacted in all five watersheds. DFG representatives reported at the meeting that they had found that habitat for fish had been "essentially erased" in Bear Creek. CDF representatives documented the meeting with minutes (Attachment 8).

On February 11, 1998, CDF informed the Discharger that it had determined after discussions with representatives of DFG, CDMG, and the Regional Water Board, that each of the five watersheds had been significantly cumulatively impacted by sediment discharges. In addition, stream aggradation during the 1996-1997 winter had eliminated or significantly reduced fish habitat in these watersheds. CDF further stated that no timber harvest plans would be approved in Bear, Jordan, and Stitz Creeks until acceptable information was submitted, as outlined in the Executive Officer's order of October 23, 1997. CDF also requested similar information for the North Fork Elk River and Freshwater Creek.

In a January 21, 1999 letter, CDF required the Discharger to evaluate whether increased flooding and/or peak flows were occurring in the Freshwater Creek and North Fork Elk River watersheds, and to determine what role, if any, harvesting and related activities were playing in such increases. In addition, CDF required that the Discharger conduct Level 2 Watershed Analysis--in which field data is collected to assess watershed conditions, causal mechanisms are evaluated, and site-specific and project-specific prescriptions are developed--before any further harvesting could occur in the Freshwater Creek and North Fork Elk River watersheds.

III. Sediment Report Submittals

In response to requirements by Regional Water Board staff and CDF, the Discharger submitted sediment budget/inventories (sediment reports) for each of the five impacted watersheds (Attachments 9, 10, 11, 12, and 13). A summary of the major findings of each of these sediment reports is included in findings of the relevant proposed Orders. In general, the sediment reports confirmed that:

- 1) landslide occurrence and sediment delivery to watercourses increased dramatically during the period from 1994 to 1997 (Table 2), and
 - 2) a significant portion of these landslides and sediment deliveries were associated with timber harvest and related activities (Table 3 and Attachment 14).
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Table 2. Total sediment delivery for two photointerpretive periods.

| Watershed | Total Ownership in Watershed (acres) | 1987-1994 Total Sediment Delivery | | 1994-1997 Total Sediment Delivery | | Percent Increase in Annual Sediment Delivery Between (1987-1994) and (1994-1997) (%) |
|----------------------|--------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|---------------------------------------|--|
| | | Total Sediment Delivery (cy/period) | Annual Sediment Delivery Rate (cy/yr) | Total Sediment Delivery (cy/period) | Annual Sediment Delivery Rate (cy/yr) | |
| Freshwater Creek | 15,400 | 59,262 | 8,466 | 71,785 | 23,928 | 283% |
| North Fork Elk River | 13,189 | 35,952 | 5,136 | 84,250 | 28,083 | 547% |
| Bear Creek | 4,850 | 64,525 ⁷ | 9,218 | 377,500 | 125,833 | 1365% |
| Jordan Creek | 3,011 | 43,880 | 6,269 | 119,080 | 39,693 | 633% |
| Stitz Creek | 2,587 | 21,350 ⁸ | 3,050 | 106,220 | 35,407 | 1161% |

Table 3. Summary of sediment delivery due to anthropogenic sources, 1994-1997.

| Watershed | Total Sediment Delivery (cy) | Sediment Delivery due to Anthropogenic Sources ⁹ | |
|----------------------|------------------------------|---|------------------|
| | | (cy) | (% of Total) |
| Freshwater Creek | 71,785 | 63,530 | 89% |
| North Fork Elk River | 84,250 | 80,480 | 95% |
| Bear Creek | 377,500 | 311,762 | 83% |
| Jordan Creek | 119,080 | 95,373 | 80% |
| Stitz Creek | 106,220 | -- ¹⁰ | -- ¹⁰ |

⁷ Bear Creek sediment delivery for 1987-1994 period is based on annual average sediment delivery between (1966-1974) and (1974-1994) air photos: 1974+1994: 258,100 cy.

⁸ Stitz Creek total sediment deliveries are based on annual average total mass wasting volume and sediment delivery volumes in the (1967-1997) photo period and that associated with the 1997 winter events: 1967-1997: 188,567 cy; 1997 storm: 97,070.

⁹ Total contribution from anthropogenic sources was calculated as: (Harvest-Related) + (Road-Related). It is that portion related to harvesting that occurred between 1982-1997.

¹⁰ Specific sediment sources are not currently available for Stitz Creek. Refer to Attachment 14, anthropogenic source calculations.

The data in the sediment reports confirmed the previous determinations by staff of the Regional Water Board, CDF, DFG, and CDMG, that significant cumulative impacts to beneficial uses of waters had occurred within the five watersheds, especially from sediment delivered during the 1994 to 1997 period. The sediment reports also confirmed that timber harvesting and related activities within these watersheds contributed significantly to those impacts.

Analysis of sediment data in the reports demonstrated that during the winters of 1995/1996 and 1996/1997, significantly greater volumes of sediment were delivered to the watercourses within these watersheds than would have been delivered in absence of timber harvest and harvest-related activities (Table 3, Attachment 14). The sediment reports also demonstrated a clear relationship between rates of timber harvest and rates of landsliding. That is, high rates of timber harvest correspond with high rates of sediment inputs to the watercourses, as shown in Attachment 15.

The sediment reports further demonstrated that, for four of the five watersheds (excluding Stitz Creek), there is a causal relationship between timber harvesting, landsliding rates, and sediment yield from landsliding. For the same storm events, the rates of landsliding and sediment yield due to landslides from recently harvested areas are significantly higher than the rates of landsliding and sediment yield due to landslides from non-harvested areas. During the period from 1994 to 1997, for example, landslide sediment yield from recently harvested areas (areas harvested less than 15 years ago) were approximately 960% (9.6 times) greater than background landslide sediment yield rates in the Bear Creek watershed and approximately 1300% (13 times) greater than background landslide sediment yield rates (sediment inputs from areas harvested more than 15 years ago) in the North Fork Elk River watershed (Reid, 1998 - analyses included with Attachment 16). Review by Regional Water Board staff comparing landslide sediment yield from recently harvested areas to older harvested areas found an increase of 150% (1.5 times) higher landslide sediment yield in Freshwater Creek watershed and 300% (3 times) higher landslide sediment yield in the Jordan Creek watershed. Regional Water Board staff will be conducting further analyses of the data for the Freshwater and Jordan Creek watersheds.

The sediment reports did not investigate the relationship between timber harvesting and landslides, nor did they provide any explanation of the linkage between the observed increases of sediment in relation to recent timber harvests within these watersheds. The Regional Water Board requested such information from the Discharger on October 8, 1998 (Attachment 16). The Discharger did not provide this information, but instead disputed the relationship between timber harvesting and increased landsliding (Attachment 17). Such an investigation is essential in order to prevent future harvest-related landslides and sediment inputs to watercourses from occurring. For further information on this issue, see Attachment 18.

Each of the Discharger's sediment reports proposed a strategy to address past sediment inputs, to avoid future landsliding and sediment discharges, and to monitor recovery of their respective watersheds, as discussed below.

A. Mitigation of Past Sediment Discharges

The mitigation strategy proposed in each sediment report to address the sediment discharges identified by each report focussed on addressing road and landing-related sediment discharges and landslides. Discharges from roads and landings, while important, comprised only a portion of the sediment delivered to the watercourses within each watershed (Table 4).

Table 4. Sediment delivery from road-related sources, non road-related sources, and harvest related sources, 1994-1997.

| Watershed | Road Related Sediment Delivery | | Non-Road Related Sediment Delivery | | Harvest Related Sediment Delivery ¹¹ | |
|----------------------|--------------------------------|--------------|------------------------------------|--------------|---|--------------|
| | (cy) | (% of Total) | (cy) | (% of Total) | (cy) | (% of Total) |
| Freshwater Creek | 22,544 | 31% | 49,241 | 69% | 40,986 | 57% |
| North Fork Elk River | 16,250 | 19% | 68,000 | 81% | 64,230 | 76% |
| Bear Creek | 53,520 | 14% | 323,980 | 86% | 258,242 | 68% |
| Jordan Creek | 29,180 | 25% | 89,899 | 75% | 66,193 | 56% |

At this time, Regional Water Board staff do not know the status or extent of implementation of the identified mitigation measures or the effectiveness of those measures which have been implemented in these watershed. Therefore, the proposed Orders require in part that this information be submitted by the Discharger.

B. Avoidance of Future Sediment Discharges

In order to avoid future sediment discharges, the sediment reports proposed a landslide prevention and avoidance plan employing the Mass Wasting Avoidance Strategy (MWAS), as described in the HCP.

As discussed earlier, although the reports demonstrated an increase in landslide incidence and sediment deliveries from recently harvested slopes, they did not explain what causes this relationship between timber harvest and the associated landsliding within these watersheds. In the absence of this information, the MWAS described in the HCP is not a sufficiently reliable strategy to avoid future harvest-related landslides within these watersheds, for a number of reasons, as explained on page 13, below, and in Attachment 18.

¹¹ Harvest-related sediment delivery was calculated as: (Total Sediment Delivery) – (Road-Related Delivery) – (Background)

C. Monitoring

The sediment reports proposed limited monitoring to track physical and biological changes in the watersheds (including such components as photographic documentation of channel conditions; cross-section measurements; and bank erosion surveys). The reports did not propose any water quality monitoring, although Regional Water Board and CDF had specifically required water quality monitoring, in order to quantify existing impacts to beneficial uses of water, to determine the effectiveness of erosion control activities, to measure recovery of impaired beneficial uses, and to assure that current and future timber harvest and related activities comply with Basin Plan water quality objectives and do not interfere with the recovery and protections of impaired beneficial uses. Since the submission of the sediment reports, Regional Water Board staff have repeatedly issued letters requiring that the Discharger develop and implement a comprehensive water quality monitoring program, especially for suspended sediment and turbidity. To date, the Discharger has not provided an acceptable water quality monitoring proposal. Similar water quality monitoring involving fine sediment is required under the HCP (Sections 6.3.5.2.6 - 6.3.5.2.9 and 6.3.5.3), but the Discharger has not yet complied with this HCP requirement. At this time, the wildlife agencies (DFG, National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS)), CDF, and Regional Water Board staff are working with the Discharger to achieve compliance with this HCP requirement.

The Discharger has conducted limited physical and biological monitoring related to stream morphology and aquatic habitat in North Fork Elk River and Bear Creek over the last two years. Results from this monitoring confirm that the aquatic habitat in both watercourses is still impaired. Aquatic habitat in Bear Creek is showing some recovery, but has still not achieved properly functioning conditions. A detailed review of the monitoring data for these two watercourses by Regional Water Board staff is included in Attachment 19.

Limited, THP-specific turbidity monitoring has also been conducted by the Discharger in Stitz Creek (THP 1-98-089 HUM) and Jordan Creek (THP 1-99-328 HUM). This monitoring shows a strong likelihood for violation of water quality standards from the Discharger's timber harvest practices in the impacted watersheds. The Discharger has also conducted limited monitoring for turbidity at the confluence of the North and South Forks of Elk River, but this analysis was done without any stated objective and using inappropriate methods, thus limiting the effectiveness of this effort. A detailed review of the Discharger's turbidity monitoring data by Regional Water Board staff is included in Attachment 20. No turbidity monitoring has been reported for Bear or Jordan Creeks.

In summary, apart from the limited monitoring efforts discussed above, the Discharger has not conducted monitoring for water quality objectives contained in the Basin Plan in the five impaired watersheds. Monitoring for specific water quality objectives is necessary to:

- Quantify existing impacts to beneficial uses of water
- Determine the effectiveness of erosion control activities
- Measure recovery of impaired beneficial uses
- Assure that current and future timber harvest and related activities comply with water quality objectives
- Assure that current and future timber harvest and related activities do not interfere with the recovery and protection of impaired beneficial uses

IV. Watershed Analysis Required by the HCP

The Discharger, under the terms of the HCP, is required to conduct a Level 2 Watershed Analysis for each of its watersheds by February, 2004. In a Level 2 Watershed Analysis, field data is collected to assess watershed conditions, causal mechanisms are evaluated, site-specific and project-specific prescriptions are developed to prevent timber harvest-related impacts, monitoring is conducted to ensure that prescriptions are effective, and prescriptions are adapted as necessary. The Discharger has initiated, but not yet completed, Watershed Analysis for the Freshwater Creek watershed. The Discharger has not yet commenced Watershed Analysis for any of the other four watersheds.

The Freshwater Creek Watershed Analysis, which is currently underway, does not include a Water Quality module, although this normally is one of the standard modules included in the State of Washington Department of Natural Resources' Watershed Analysis procedure, which the Discharger is using to comply with HCP requirements. Unfortunately, the HCP only states that "water quality critical and key questions may also be incorporated into the assessment" (HCP, section 6.3.2.1.5). Not only are there no site-specific prescriptions for any of these watersheds at this time, but based on the Discharger's approach in Freshwater Creek, water quality apparently will not be a focus of any of the Watershed Analyses. Therefore, there is no assurance that all beneficial uses will be adequately protected from the Discharger's harvest activities when the Watershed Analyses have been completed.

The lack of a water quality module will make it difficult, if not impossible, to develop site-specific prescriptions under Watershed Analysis to mitigate all water quality impacts. Given this, there is no assurance that all beneficial uses will be protected once the Freshwater Creek Watershed Analysis is completed, and after the remaining four watersheds begin and complete Analysis some time over the next four years. Staff has informed the Discharger that a comprehensive Watershed Analysis, which includes a water quality module, is essential to develop site-specific prescriptions for these impacted watersheds in order to assure that all beneficial uses are restored and protected from future timber harvest and harvest-related activities by the Discharger.

V. The Discharger's Current and Proposed Activities

The Discharger is now conducting or proposing to conduct additional timber harvesting within each of these five impacted watersheds. The proposed rates of harvest are similar to or significantly higher than those employed by the Discharger prior to the winters of 1995/1996

and 1996/1997 which resulted in the documented adverse impacts to beneficial uses of waters within these watersheds. (Table 5).

The Discharger claims that, in absence of site-specific prescriptions, compliance with the provisions and interim prescriptions required by the HCP and compliance with the Sustained Yield Plan (SYP), will provide adequate protection of all resources, including water quality, from any impacts that may result from its ongoing and future activities in

Table 5. Past, active, and proposed rates of harvest in PALCO ownership.

| Watershed | Total Ownership in Watershed (ac) | 1987-1997 | | Active and Proposed THPs ¹² | | | |
|----------------------|--|-------------------|---------------------|--|---------------------|-------------------|---------------------|
| | | Rate of Harvest | | Rate of Harvest | | Rate of Clear Cut | |
| | | (ac/yr) | (% of Ownership) | (ac/yr) | (% of Ownership) | (ac/yr) | (% of Ownership) |
| Freshwater Creek | 15,400 | 736 | 4.8% | 645 | 5.7% | 492 | 3.2% |
| North Fork Elk River | 13,192 | 504 | 3.8% | 1,325 | 10% | 603 | 4.6% |
| Bear Creek | 4,850 | 241 ¹³ | ~5% | 314 | 6.5% | 257 | 5.3% |
| Jordan Creek | 3,011 | 115 | 3.8% | 295 | 9.8% | 82 | 2.7% |
| Stitz Creek | 2,587 | 70 | 2.3% | 56 | 2.2% | 56 | 2.2% |

these watersheds. The HCP and the Sustained Yield Plan (SYP) do not place a limit on rates of harvest within specific sub-watersheds. Limitations on rate of harvest within these impacted watersheds is essential to attain and maintain water quality standards. This is discussed further in Section VI.A., below.

VI. Compliance with the HCP and Sustained Yield Plan (SYP) Does Not Assure Protection of Water Quality and Beneficial Uses

The HCP and the SYP were not designed nor intended to protect all beneficial uses of water. These plans are intended only to protect the habitat of endangered species. However, the HCP does not address Clean Water Act requirements for impaired water bodies, nor protect all beneficial uses of water, including municipal and domestic supply; water-contact recreation; non water-contact recreation; and agricultural supply. This is an especially significant concern for watersheds where some or all of these beneficial uses are already impaired. In fact, section 3.4.1.3 of the FEIR/FEIS for the HCP/SYP states that “because the proposed HCP/SYP is not designed to specifically address impaired waters to meet the water quality criteria, additional restrictions and BMPs may be required later by the TMDL process....” To date, the Discharger

¹² Active and proposed THPs as of September 7, 2000.

¹³ Bear Creek harvest information obtained from CDF.

has not included consideration of protection of beneficial uses other than cold freshwater habitat in the HCP process. Specific deficiencies with the provisions and interim prescriptions of the HCP and the SYP in the protection of water quality standards in these watersheds include the following:

A. No Limitations on Rate of Harvest Within Subwatersheds

The HCP/SYP do not impose any limitations on rates of harvest on a subwatershed basis. The rates of harvest that the Discharger is currently proposing within the five impacted watersheds will produce sediment in quantities which will further degrade water quality and which will violate Basin Plan objectives, as was demonstrated in the winters of 1995-96 and 1996-97.

This is further explained in analyses by Dr. Leslie Reid, conducted at the request of Regional Water Board staff for Bear Creek and Elk River watersheds, where she demonstrated that in order to ensure compliance with water quality objectives and to protect these watersheds, it is essential that rates of harvest far below what is currently being proposed be implemented. Dr. Reid's analyses show that in order to assure compliance with water quality objectives and to not impede the rates of recovery in these watersheds, annual harvest rates must be maintained below 0.3% for the North Fork Elk River watershed (Attachment 22) and 1.5% for the Bear Creek watershed (Attachment 23).

Limitations on harvest rates are also warranted for Jordan and Freshwater Creeks, based on correlations between timber harvest and landslide incidence within these watersheds, as shown in the PWA reports. However, Regional Water Board staff are not proposing harvest rate limitations within these watersheds at this time because staff have not determined what rates would be acceptable.

B. HCP Interim Prescriptions and Their Deficiencies in Attaining and Maintaining Water Quality Necessary for Restoring and Protecting Beneficial Uses

1) Mass Wasting Avoidance Strategy (MWAS)

The Discharger claims that the MWAS and other components of the SYP/HCP specify a program of management that will lead to markedly improved conditions within its watersheds (Attachment 17). As noted above, Regional Water Board staff do not believe that MWAS alone will be adequate to prevent future timber harvest related landslides. Further information related to this issue is also included in Attachment 18. The major deficiencies include the following:

- a. MWAS focuses on areas defined as mass wasting areas of concern (MWACs) by the HCP. However, failures also occur on slopes which do not meet the MWAC definition, including planar slopes and "break(s) in slope" (Reid 1998, from PWA report for Bear Creek; Reid 2000 - Attachments 21 and 22).
- b. MWAS does not take into account the behavior of the landscape following timber harvesting, with the associated loss of root strength, increased moisture levels during storms, and rise in ground water elevations resulting from changes in

evapotranspiration. Loss of root strength and increase in pore water pressure can significantly decrease slope stability and increase landsliding.

- c. MWAS relies, in part, on the use of a model which is not sufficient to predict/prevent harvest related landslides because:
 - i. The Discharger has not provided any quantifiable and verifiable geologic analyses of the risk of hillslope failure resulting from timber harvest and related activities.
 - ii. The model relies on a number of unvalidated assumptions which greatly oversimplify variability in watershed and physical settings; and
 - iii. Model input data is not field verified, so the MWAS model is not calibrated to reflect site-specific characteristics.

2) Streamside Buffers

The Discharger states that, in contrast to the streamside buffers required by the FPRs, the expanded interim streamside buffers required under the HCP will adequately protect water quality from sediment discharges.

Streamside buffers are effective in providing recruitment of large woody debris, shade and cooler temperatures, root-induced bank stability, and filtration of coarse sediment from stormwater runoff. However, streamside buffers are only marginally effective in filtering fine sediment from runoff and they are ineffective in preventing harvest-related landslides.

Limited turbidity monitoring conducted by the Discharger in Jordan and Stitz Creeks shows a strong likelihood that the HCP interim streamside buffers may not be effective in mitigating discharges of fine sediment (see Attachment 19). To date, the Discharger has not conducted monitoring to evaluate the effectiveness of streamside buffers in preventing violations of the Basin Plan water quality objectives for fine sediment, as required by HCP Section 6.3.5.2.8. Without such monitoring, Regional Water Board staff do not have any assurance that the interim streamside buffers adequately protect water quality from discharges of fine sediment.

In summary, the interim prescriptions of the HCP do not provide adequate protection to all of the beneficial uses in these impacted watersheds.

C. Other HCP Provisions and Their Deficiencies in Attaining and Maintaining Water Quality Necessary for Restoring and Protecting Beneficial Uses

In addition to the interim prescriptions, the Discharger proposes to use the following strategies to mitigate the impacts to aquatic resources from future timber harvest and related activities.

1) Road Upgrading and Stormproofing

As was shown in the sediment reports, and summarized in Table 4, for the five impacted watersheds, road related sediment discharges only constituted a portion of the sediment inputs to those watersheds from harvest and related management activities. Therefore, road upgrades alone will not be sufficient to mitigate other harvest related impacts. Also, as long as roads and road use remain on the landscape, sediment discharges will occur even from upgraded or stormproofed roads, though at a reduced rate. For further information regarding this issue, see Dr. Leslie Reid's analysis for the North Fork Elk River (Attachment 22).

The Discharger has not, to date, provided any monitoring data to demonstrate the effectiveness of its upgrades and stormproofing in reducing sediment generation and discharges from roads to watercourses.

2) Zero Net Discharge (ZND) Strategy

In addition to the protections provided by the interim prescriptions in the HCP, the Discharger claims that the Zero Net Discharge (ZND) strategy used on its lands will more than offset sediment generation/inputs from its harvest and related activities. ZND is a strategy to offset expected sediment production from timber harvest plans by fixing existing or potential sources of sediment discharges (such as roads, landings, and watercourse crossings) within the same planning watershed(s) (HCP 6.3.3.3(2)). Regional Board staff do not believe that ZND can adequately mitigate the impacts from current and future timber harvest and related activities in these already impacted watersheds for several reasons.

First, ZND, even under ideal conditions can, at best, only assure status quo. Since these five watersheds are already significantly impacted, ZND will not result in their recovery. In fact, even a Negative Net Discharge (NND) strategy will not prove adequate in these watersheds to attain and maintain water quality standards as long as high impact harvesting and related activities continue. This is clearly demonstrated by the analysis conducted by Dr. Leslie Reid, at the request of Regional Water Board staff, for the North Fork Elk River watershed.(Attachment 22).

Second, there is a discontinuity in time and space between when the sediment is generated and delivered from timber harvesting and when the sediment "savings" occur from implementation of the ZND strategy. Specifically, fine sediment generation and deliveries occur as soon as the harvesting commences and continue until the site is revegetated. According to the Water Erosion Prediction Project (WEPP) model employed by the Discharger to determine sediment generation, over 80% of the fine sediment deliveries from harvested areas occur during the first 5 years following harvest. The risk of landslides from harvested areas also commences with timber harvest and typically continues for at least the next 15 years, as demonstrated by the sediment reports provided by the Discharger. In contrast, the sediment "saved" may not have been delivered to a watercourse during the same time period and, in fact, may never have been delivered. In addition, sediment saving sites are not always located in the same watercourse

segments as the timber harvest and related activities which they are intended to offset.

Third, sediment saved and sediment generated are not correlated by sediment classes, that is fine vs. coarse. Thus, a greater percentage of sediment savings for a given project may be coarse while the sediment generated from the project may be fine. The impacts to water quality resulting from discharge of fine sediment are far different from those which occur from the discharge of coarse sediment, so the ZND may not adequately mitigate these impacts.

Fourth, there is potential for significant error in methodologies used to calculate both sediment generation and sediment savings. Sediment generation is estimated using a model which has not been validated for site-specific conditions. Sediment savings are based, in part, on field measurements, but also rely heavily on field staffs' judgment to estimate probability of failure, volume of sediment likely to be generated, and percentage of the sediment which is likely to be delivered to a watercourse.

Finally, since sediment generation calculations do not anticipate harvest-related landsliding, sediment savings do not account for sediment generation from harvest-related landslides, which are likely to occur unless prevented. As discussed in Section VI.B.1., above, the Discharger has not, to date, provided an adequate landslide prevention strategy.

3) Disturbance Index (DI)

The Discharger contends that compliance with the Disturbance Index (DI) in the HCP will prevent cumulative significant adverse impacts from occurring in these watersheds. DI is a determination of relative levels of watershed disturbance by identifying harvest management practices (yarding techniques and silvicultural methods) which have been, are currently being, and are proposed to be used in a particular planning area and applying a multiplier relative to these various methods to determine the extent of disturbance within that area. This level of disturbance is then used together with watershed sensitivity assessment to broadly guide future land management in a fashion that minimizes disturbance to potentially sensitive terrain, thereby reducing the potential for accelerated erosion and sediment yield to watercourses. In the HCP, once the DI exceeds 20%, the Discharger is required to apply the following restrictions in order to prevent eradication of salmonid populations:

- i. Conduct no clearcut or rehabilitation harvest
- ii. Conduct full suspension skyline or helicopter yarding only
- iii. Conduct no new road construction or reconstruction
- iv. Limit wet weather period operations...
- v. Conduct no broadcast burning
- vi. Conduct no skid trail or layout construction
- vii. Treat all areas of bare mineral soil...
- viii. Remove no more than 50 percent of the basal area in one entry.

However, the way the DI is calculated in the HCP has never been calibrated or validated to reflect the true condition of resources within the Discharger's watersheds. For example, although the Bear Creek, Stitz Creek, Jordan Creek, North Fork Elk River, and Freshwater Creek watersheds are significantly cumulatively adversely impacted, their respective current DI values indicate that they are not impacted. Therefore, the more protective harvest practices which are required by the HCP to be implemented when a watershed is significantly adversely impacted will not be implemented in these impacted watersheds under the current DI.

VII. Relying on the Current THP Review Process Will Not Assure Protection of Water Quality and Beneficial Uses

The Discharger often uses provisions of the HCP such as the interim prescriptions and the ZND as justification to weaken even the minimum requirements of the Forest Practice Rules (FPRs). For example, the Discharger frequently proposes oversized clearcut units, and states that the interim prescriptions and/or ZND, minimum HCP requirements for all of the Discharger's activities, should serve as acceptable added mitigation to justify the oversized units (e.g., THP 1-00-002 HUM and THP 1-99-502 HUM). In addition, the Discharger often interprets FPR and HCP provisions pertaining to protections of aquatic resources differently from the way field staff of wildlife agencies, CDF field inspectors, and Regional Water Board staff interpret those provisions. Recent examples include several cases where the Discharger has proposed timber harvest on land features which meet the HCP definition of mass wasting areas of concern (MWACs) (e.g., THP 1-00-161 HUM, THP 1-00-204 HUM, and 1-99-442 HUM).

The Discharger has proposed several amendments to the HCP in order to accommodate its desire to maximize the amount of timber it can harvest. Since the Regional Water Board is not signatory to the HCP, Regional Water Board staff are not effective in preventing amendments which may prove to be detrimental to water quality. For example, the Discharger recently requested that the signatory agencies revise the definition of MWACs in the HCP to allow timber harvesting on dormant landslides before watershed analysis has been completed. In Regional Water Board staff's judgment, allowing harvest to occur on these features based solely on limited field observations will increase the likelihood for timber harvest-related landslides and sediment delivery to already impaired watercourses. Regional Water Board staff requests for amendments to the HCP to assure or improve water quality protection provisions, such as to make the Disturbance Index more reflective of true watershed conditions, have not been successful.

In summary, relying on the current THP review and approval process, utilizing the provisions of the FPRs and the HCP will not assure restoration or protection of all impaired beneficial uses in these watersheds.

VIII. The Regional Water Board's Authority

The Regional Board adopted a major rewrite of the Water Quality Control Plan for the North Coast Region (Basin Plan) on December 9, 1993. The State Water Resources

Control Board, on March 21, 1994, and the Office of Administrative Law, on August 18, 1994, approved the Basin Plan. The Basin Plan was amended on March 24, 1994, June 22, 1995, and May 23, 1996.

Pursuant to the Basin Plan, including State Water Board Resolution 88-63, the existing and potential Beneficial Uses of the five watersheds and their tributaries:

- a. Municipal and Domestic Supply (MUN)
- b. Agricultural Supply (AGR)
- c. Cold Freshwater Habitat (COLD)
- d. Industrial Service Supply (IND)
- e. Water Contact Recreation (REC-1)
- f. Non-contact Water Recreation (REC-2)
- g. Estuarine Habitat (EST)
- h. Wildlife habitat (WILD)
- i. Rare, Threatened, or Endangered Species (RARE)
- j. Spawning, Reproduction, and/or Early Development (SPWN)
- k. Migration of Aquatic Organisms (MIGR)

The Basin Plan's Action Plan for Logging, Construction, and Associated Activities includes the following prohibitions:

- a. The discharge of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other Beneficial Uses is prohibited.
- b. The placing or disposal of soil, silt, bark, slash, sawdust, or other organic, and earthen material from any logging, construction, or associated activities of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities which could be deleterious to fish, wildlife, or other Beneficial Uses is prohibited.

The Basin Plan's Guidelines for Implementation and Enforcement of Discharge Prohibitions Relating to Logging, Construction and Associated Activities identify, in part, the following Water Quality Objectives, from Section 3 of the Basin Plan, as of particular importance in protecting Beneficial Uses from unreasonable effect due to discharges from logging, construction, or associated activities:

- a. Turbidity shall not be increased more than 20 percent above naturally occurring background levels.
- b. Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible product of aquatic origin, that causes nuisance or adversely affects the Beneficial Uses.
- c. Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect Beneficial Uses.

- d. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect Beneficial Uses.

The Basin Plan also states that “controllable water quality factors shall conform to the water quality objectives contained herein. When other factors result in the degradation of water quality beyond the level or limits established herein as water quality objectives, then controllable factors shall not cause further degradation of water quality. Controllable water quality factors are those actions, conditions, or circumstances resulting from man’s activities that may influence the quality of the waters of the State and that may be reasonably controlled.” Controllable water quality factors include those that result from timber harvest activities.

On April 23, 1998, the Regional Board adopted Resolution No. 98-45, adopting a schedule for the development of Total Maximum Daily Loads (TMDLs) and priority rankings for impaired waterbodies on the Clean Water Act Section 303(d) list. Water bodies which are Section 303(d) listed as impaired must be protected from further inputs of the pollutant(s) of concern from controllable sources, and efforts must be made to restore the impaired Beneficial Uses. Freshwater Creek and Elk River are 303(d)-listed for sediment impairment, and must be protected from further inputs of sediment from controllable sources and efforts must be made to restore the impaired beneficial uses. Bear, Stitz, and Jordan Creeks are within the Eel River watershed, which is 303(d)-listed as sediment and temperature impaired. Therefore, Bear, Stitz, and Jordan Creeks must be protected from further inputs of sediment and temperature impacts from controllable sources, and efforts must be made to restore the impaired beneficial uses.

The State Water Resources Control Board’s Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California) mandates that the high quality of waters of the State be maintained, and that discharges of waste be controlled as necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

The Discharger is currently engaging in, and proposes to continue to engage in, further timber harvesting and related activities within the portions of the five impacted watersheds under its ownership, which will result in additional discharges and threatened discharges of sediment into the watercourses within these watersheds, causing further impairment of the Beneficial Uses of those waters than what has already occurred as a result of Discharger’s past timber harvesting and related activities.

As discussed above, review and approval of timber harvest plans under the current Forest Practice Rules and the HCP has not provided adequate protection for these watersheds in the past and will not assure protection or restoration of the beneficial uses in these watersheds. The Basin Plan states that when investigations by the Executive Officer of the Regional Water Board reveal that violations of the water quality objectives contained in the Basin Plan, which result or threaten to result in unreasonable effects to the beneficial uses of the waters of the Region, are occurring or are threatened to occur due to the discharge or threatened discharge of waste, the Executive Officer shall take all appropriate actions,

including Cleanup and Abatement Orders, Cease and Desist Orders, and issuance of Waste Discharge Requirements.

IX. Recommendations

At this time, Regional Water Board staff are recommending the following potential actions for the Regional Water Board to consider for protection and restoration of water quality standards in the five impacted watersheds:

- * Adoption of individual Waste Discharge Requirements for timber harvest and related activities.
- * Adoption of a Time Schedule Order for submittal of technical reports.
- * Adoption of Cease and Desist Orders for the North Fork Elk River and Bear Creek watersheds, based on rates of timber harvest within those watersheds.
- * Directive to Executive Officer to prepare a proposed amendment to the Water Quality Control Plan for the North Coast Region (Basin Plan) that defines specific water quality conditions under which the Executive Officer shall require a submittal of a report of waste discharge or monitoring plan.
- * Directive to the Executive Officer to prepare a proposal to advance the time schedule for development of Total Maximum Daily Loads for Freshwater Creek, Elk Creek, and the Middle Main Fork of the Eel River
- * No action at this time.

A. Waste Discharge Requirements

We are proposing that the Board consider adoption of Waste Discharge Requirements for the five impacted watersheds. The Waste Discharge Requirements require the Discharger to comply with the water quality objectives and prohibitions contained in the Basin Plan. In addition, the Waste Discharge Requirements include a monitoring and reporting program requiring the Discharger to demonstrate that efforts have been or are being made to restore the impaired beneficial uses in the five impacted watersheds, to evaluate the effectiveness of the Discharger's efforts to remediate the past impacts, and to ensure that the Discharger's current and proposed timber harvest and related activities do not degrade water quality or hinder remediation/restoration efforts.

On several occasions, the Discharger has stated that compliance with the Basin Plan is not required, because of the Agreement to implement the HCP, although Section 10.16 of the HCP Implementation Agreement specifically states, "...notwithstanding any other provisions in this Agreement all activities undertaken pursuant to this Agreement, the HCP, or the Federal or State Permits must be in compliance with all applicable Federal and state laws and regulations..." Thus, timber harvesting and related activities under the HCP and Implementation Agreement are subject to state laws, such as the Porter-Cologne Water Quality Control Act and the Basin Plan.

Basin Plan compliance is required under the Forest Practice Rules (Sections 912.9(A)(1) and (2) and 916.2(a)(1)). In addition, the interim amendment to FPR Section 898.2 specifically requires timber harvest plan compliance with all

requirements of any applicable water quality control plan adopted or approved by the State Water Resources Control Board.

Regional Water Board staff believe that compliance with the Basin Plan is essential for protection of beneficial uses of water. Waste Discharge Requirements, as proposed, would help to assure protection of water quality, by making compliance with Water Quality Objectives a clear requirement.

In April 2000, the Law Offices of Brecher and Volker LLP, on behalf of the Humboldt Watershed Council, petitioned the Regional Water Board to require Waste Discharge Requirements in the Freshwater Creek and Elk River watersheds (Attachment 24).

B. Cease and Desist Orders

Staff are proposing that for the Bear Creek and North Fork Elk River watersheds, the Regional Water Board consider adoption of Cease and Desist Orders. The Cease and Desist Orders, as proposed, will place a threshold on timber harvest rates in these watersheds of 1.5% (72.75 acres) per year on the Discharger's Bear Creek ownership and 0.3% (39.57 acres) per year on the Discharger's North Fork Elk River ownership, above which the Discharger would be required to submit a Report of Waste Discharge. The Cease and Desist Orders also require that the Discharger 1) report on the status of remediation efforts to date in these watersheds and any proposed further remediation efforts to be conducted and 2) implement a water quality monitoring program to quantify existing impacts to beneficial uses of water, to determine the effectiveness of erosion control activities, to measure recovery of impaired beneficial uses, and to assure that current and future timber harvest and related activities do not interfere with the recovery and protections on impaired beneficial uses. Should the Discharger choose to propose timber harvest in excess of the rates prescribed in the Cease and Desist Orders, the Discharger would be required to submit Reports of Waste Discharge providing a detailed evaluation of the relationship between timber harvest and landslide occurrence, which will then be used to develop a strategy to prevent further harvest-related landsliding. Under the Cease and Desist Orders, the Discharger may not discharge sediment associated with proposed timber harvest activities in excess of the prescribed rates, unless the Regional Water Board has adopted Waste Discharge Requirements for the proposed timber harvest and related activities in these watersheds.

As discussed above, these rates of harvest were developed by Dr. Leslie Reid of the U.S.D.A. Forest Service's Redwood Science Laboratory, at the request of Regional Water Board staff, based on correlations between timber harvest and landslide incidence within these watersheds, as shown in the sediment reports submitted by the Discharger. Based on the existing information, it is essential that timber harvesting within these watersheds remain at or below these rates in order to ensure compliance with water quality objectives and to protect these watersheds. Currently, the Discharger is conducting or proposing to conduct timber harvesting at rates much higher than the rates prescribed in these Cease and Desist Orders.

As discussed above, although the information provided in the sediment reports indicates that limitations on harvest rates are also warranted for the Jordan Creek and Freshwater Creek watersheds, we are not proposing harvest rate limitations at this time because we have not yet derived them. However, Regional Water Board staff may request that the Regional Water Board consider Cease and Desist Orders limiting annual harvest rates in these watersheds at a future Board meeting.

C. Time Schedule Order

We are proposing that the Regional Water Board consider adoption of a Time Schedule Order for all five of the impacted watersheds. The Time Schedule Order requires that the Discharger report on the status of remediation efforts to date in these watersheds and any proposed further remediation efforts to be conducted; that the Discharger implement a water quality monitoring program to quantify existing impacts to beneficial uses of water, to determine the effectiveness of erosion control activities, to measure recovery of impaired beneficial uses, and to assure that current and future timber harvest and related activities do not interfere with the recovery and protections on impaired beneficial uses; and that the Discharger provide a detailed evaluation of the relationship between timber harvest and landslide occurrence, which will then be used to develop a strategy to prevent further harvest-related landsliding.

As mentioned above, Regional Water Board staff have repeatedly requested water quality monitoring, but to date the Discharger has not fully complied with these requests. In addition, Regional Water Board staff have requested the Discharger to investigate the connection between timber harvesting and landsliding, but to date the Discharger has not complied. The Time Schedule Order clearly describes the information that staff needs in order to protect water quality in these watersheds and imposes civil liability should the Discharger fail to provide this information.

D. Directive to Executive Officer to Prepare a Proposed Amendment to the Basin Plan That Defines Specific Water Quality Conditions Under Which the Executive Officer Shall Require Submittal of a Report of Waste Discharge or Monitoring Plan

The Basin Plan already authorizes the Executive Officer to request reports of waste discharge and monitoring plans, when investigations indicate that the beneficial uses of water may be adversely affected by waste discharges. However, this amendment could define specific water quality conditions, such as documented cumulative adverse impacts, excessive rates of harvest, repeated violations of the Forest Practice Rules, implementation of harvest practices or activities that result or threaten to result in significant cumulative watershed impacts, etc., under which the Executive Officer would be required to request a report of waste discharge or monitoring plan.

E. Directive to the Executive Officer to Prepare a Proposal to Advance the Time Schedule for Development of Total Maximum Daily Loads for Freshwater Creek, Elk Creek, and the Middle Main Fork of the Eel River

Freshwater Creek and Elk River are currently listed as impaired on the Clean Water Act Section 303(d) list of impaired waterbodies due to excessive sediment. Bear

Creek, Stitz Creek, and Jordan Creek are within the Eel River watershed, which is 303(d)-listed as sediment and temperature impaired. On April 23, 1998, the RWQCB adopted Resolution No. 98-45 adopting a schedule for the development of Total Maximum Daily Loads (TMDLs) and priority rankings for waterbodies on the Clean Water Act Section 303(d) list. Eel River, Elk River, and Freshwater Creek are currently scheduled for TMDL development by the years 2005, 2009, and 2010, respectively.

The FEIR/FEIS for the HCP and SYP clearly acknowledge, in Section 3.4.1.3, that the HCP and SYP are not designed specifically to address impaired water bodies (e.g., 303(d)-listed waterbodies), and that additional best management practices and restrictions may be required later by the TMDL process.

If the Regional Water Board were to direct the Executive Officer to prepare a proposal to advance the time schedule for TMDL development and implementation, then, through the TMDL development process, the Regional Water Board could require development and implementation of measures necessary to restore the impacted beneficial uses and to prevent further adverse impacts from occurring to some or all of these five watersheds in a more expeditious manner.

F. No Action at This Time

Finally, the Regional Water Board may opt to take no action at this time, and to direct staff to continue to participate in the existing timber harvest plan review process with implementation of the Forest Practice Rules and the HCP. However, Regional Water Board staff believe that approval of Timber Harvest Plans under the current Forest Practice Rules and the HCP has not provided adequate protection for these watersheds in the past and will not allow for restoration and protection of the beneficial uses of these watersheds in the future.