

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF JULY 10, 2009

ITEM NUMBER: 15

**SUBJECT: REGULATION OF TIMBER HARVEST ACTIVITIES IN THE CENTRAL
COAST REGION**

SUMMARY

The Central Coast Regional Water Quality Control Board (Water Board) has been regulating timber harvest activities intensively since July 2005, when the Water Board adopted Order No. R3-2005-0066, the General Conditional Waiver of Waste Discharge Requirements – Timber Harvest Activities in the Central Coast Region (Attachment 1) (Timber Order or Waiver). Since that time, Water Board staff has gained a better understanding of timber harvest activities, their impact on water quality, and the most appropriate methods for regulating them.

In 2005, upon adoption of the Timber Order, the Water Board directed staff to conduct a review of the first 24 months of monitoring data collected as required by the 2005 Timber Order and report back to the Water Board with findings. Staff conducted that review, including reviewing compliance history of timber harvest operations, water quality impacts from reporting and field observations, and temperature and turbidity data submitted by the Dischargers and from other sources. Through this review, staff found that timber harvest operations that comply with the conditions of the Timber Order are generally not or only minimally impacting water quality as further described in the Staff Report.

Based on the review of timber operations, Water Board staff is recommending minor modifications in the program. Water Board staff does not propose to modify the Timber Order itself. Water Board staff proposes modifications to the monitoring and reporting program (MRP) and the notice of intent (NOI) used by Dischargers to enroll under the Timber Order. Neither of these changes require a revision to the Timber Order. The Timber Order authorizes the Executive Officer to modify the MRP and the NOI. Water Board staff proposes, however, that the Central Coast Water Board adopt the revisions to the MRP and the NOI. Such revisions will apply to future waiver enrollees, and to Timber Harvest Plans (THP) and Nonindustrial Timber Management Plans (NTMP) currently enrolled under an Individual or General Conditional Waiver in the Central Coast Region.

The Water Board incurred budget cuts in 2008 and 2009 that have required the Water Board to reduce staff resources associated with certain activities, particularly lower priority activities. The Executive Officer has reallocated staff resources from the timber program. The reallocation of staff resources assumes an estimated 0.4 PY (personnel year) allocation for technical staff to manage the timber program and an allocation of 20 hours per week for one student intern to assist technical staff; previously staff spent about 1 PY on timber harvest program activities. This reallocation of staff resources is

not expected to reduce enforcement of the Timber Order, but will take advantage of the information gained from review of the program to use staff more efficiently.

HISTORY

On October 10, 1999 the California State Senate adopted Senate Bill 390 (SB 390) amending California Water Code §13269 by requiring that existing waivers expire on January 1, 2003. This included the Water Board's existing waiver for timber harvest activities, circa 1983, which waived "Timber harvesting operating under approved timber harvest plan." After January 1, 2003 new waivers of waste discharge requirements for specific types of discharges had to be reconsidered and, if appropriate, be renewed every five years.

Prior to SB 390 the Water Board regulated timber harvest activities by participating as a review team member for the California Department of Forestry and Fire Protection (Cal Fire) timber harvest review process. Between January 1, 2003 and July 8, 2005 the Water Board issued Individual Conditional Waivers of Waste Discharge Requirements to all Dischargers¹ seeking to conduct timber harvest activities within the Central Coast Region.

On July 8, 2005 the Water Board adopted the Timber Order and MRP. The Water Board was the lead agency for purposes of the California Environmental Quality Act (CEQA) and prepared an Initial Study and adopted a Negative Declaration. The requirements for timber harvesting specified in the Timber Order comply with the California Water Code §13269. As part of the MRP, the Dischargers are required to conduct visual, temperature, and turbidity monitoring within the harvested area.

DISCUSSION

Staff Process for Review of Timber Harvest Activities

First, Water Board staff recommends that staff review only the highest priority (highest risk) plans as they are submitted to Cal Fire. Under the current General Conditional Waiver enrollment process, Water Board staff reviews *all* proposed timber harvest plans within the Central Coast Region as they are submitted to Cal Fire. Staff has been conducting this level of review assuming it is most effective to identify potential water quality problems and insure protection. Staff has learned that this process yields small amounts of water quality protection in proportion to the amount of time staff spends on the task of reviewing all plans as submitted plans are generally in compliance with the Timber Order conditions. With this change, staff will be more effective at focusing on the highest priority (highest risk) plans. Staff considers plans categorized by the Discharger as Tier IV based on the Eligibility Criteria and / or plans located within water bodies that are listed on the Clean Water Acts Section 303(d) list or identified as impaired for sediment or temperature in an established TMDL will be considered as highest priority. Staff will also rely on other review team members and the public to assist in determining the priority of a particular plan.

¹ Throughout this document "Discharger" means the landowner and anyone working on behalf of the landowner in the conduct of timber harvest activities including monitoring.

Secondly, Water Board staff recommends modifying the frequency of attendance at Cal Fire preharvest inspections. Since the adoption of the Timber Order in July 2005, Water Board staff has attended a *majority* of Cal Fire's preharvest inspections. When Water Board staff was not available to attend the Cal Fire inspection, staff inspected the plan area later with the forester or land owner. Categorically attending *all* Cal Fire preharvest inspections again, like reviewing *all* plans, yields small amounts of water quality protection in proportion to the amount of time staff spends on preharvest inspections. While attendance at preharvest inspections will be reduced with this change, attendance will be weighted toward Tier IV plans and other high priority plans. This should equate to approximately three to five Cal Fire preharvest inspections per year. Water Board staff will also prioritize inspections towards active harvest, postharvest, complaints, and violations inspections for high priority plans and will also conduct random inspections for all plans enrolled under an Individual or General Conditional Waiver.

Notice of Intent Process

The Executive Officer intends to revise the NOI to require the Discharger to compare their plan to the Eligibility Criteria prior to the Cal Fire preharvest inspection. (Attachment 4). If the plan is categorized as a Tier IV by the Eligibility Criteria, the Discharger must notify Water Board staff.

Under the current process, once a plan is approved by Cal Fire, the Discharger must submit a detailed NOI (Attachment 3) to the Water Board to request enrollment under the Timber Order. Staff then conducts a detailed review of the NOI to determine if the information provided is accurate and complete. Staff then compares the information in the NOI to the Eligibility Criteria to determine the appropriate monitoring tier level. This process is very intensive, time consuming, and yields little to no water quality protection. Information requested by the current NOI is contained in the timber harvest plan submitted to Cal Fire that is provided to the Water Board. Since the Discharger has prepared the timber harvest plan, the Discharger can also complete the Eligibility Criteria analysis and provide this information to the Water Board.

Revising the process to require that the Discharger determines tier ranking in advance of the Cal Fire preharvest inspection allows staff to prioritize attendance at Cal Fire preharvest inspections and assures that the tier level is considered during Cal Fire's review of the plan. Advance knowledge of a plan's tier level also gives staff several months of lead time, instead of weeks, to prepare an Individual Conditional Waiver for Board Meetings. This will minimize delays and backlogs in enrolling plans and preventing harvests from starting when scheduled. Upon approval of the plan by Cal Fire, the Discharger will fill out the revised NOI (Attachment 4) and submit it to the Water Board. The revised NOI is a two page application providing critical contact information, landowner signature certifying that the information they provided is true and correct, and the monitoring tier with eligibility criteria worksheets attached. This revised NOI is consistent with NOIs in other regions.

Finally, staff recommends clarifying the effective date of enrollment in the General Waiver. Upon receipt of a complete NOI, within two weeks, the Discharger will receive written confirmation from the Executive Officer that the plan is enrolled under the Timber Order. Once the Discharger receives written confirmation of enrollment under the Timber Order the Discharger may commence harvest operations. Unless the Eligibility Criteria categorizes a timber harvest plan under Tier IV monitoring, the plan will be enrolled

under the General Waiver upon receipt of a complete NOI and after approval by the Executive Officer. Plans categorized as Tier IV monitoring will still need to seek enrollment under an Individual Conditional Waiver prior to the commencement of operations.

These changes to the NOI do not alter the substantive conditions of the Timber Order or any proposed Individual Conditional Waiver – the Discharger must still comply with the conditions and protect water quality. The Dischargers are required to submit information to the Water Board indicating whether the Discharger would conclude whether they qualify for a General Waiver or an Individual Waiver. It is the Water Board's decision whether a Discharger qualifies for a General or Individual Waiver, not the Discharger's. The current Timber Order already provides that the Discharger will notify Water Board staff of their qualification for General or Individual Waiver. The NOI requires the Dischargers to include their Eligibility Criteria worksheets with their application. Water Board staff will continue to review and verify the information contained in the worksheets against the information in the respective THPs and NTMPs. There will be Water Board staff oversight and Dischargers have and will continue to notify Water Board staff when an Individual Waiver is needed.

Effective Date of Enrollment

Finally, staff recommends clarifying the effective date of enrollment in the General Waiver. Upon receipt of a complete NOI, within two weeks, the Discharger will receive written confirmation from the Executive Officer that the plan is enrolled under the Timber Order. Once the Discharger receives written confirmation of enrollment under the Timber Order the Discharger may commence harvest operations, unless the Eligibility Criteria categorizes a timber harvest plan under Tier IV monitoring. Plans categorized as Tier IV monitoring will still need to seek enrollment under an Individual Conditional Waiver prior to the commencement of operations.

Monitoring and Reporting Program

The revised MRP would modify the current MRP by requiring essentially the same monitoring of all plans in Tiers I through III, based on adaptive management, compliance with Cal Fire's Forest Practice Rules, visual inspections, and forensic monitoring. Dischargers will still be required to notify the Water Board of a violation, sediment releases, drastic change in site conditions, or events that trigger forensic monitoring. The recommended revisions are contained in an edited version of the MRP included as Attachment 5. The Dischargers will not be required to submit a Road Management Plan; instead the plan elements would now be included in the MRP. As before, the Executive Officer may require additional monitoring as appropriate.

Based on the current MRP, all plans categorized as Tier I must conduct Cal Fire Forest Practice Rules compliance monitoring, forensic monitoring, and prepare a Road Management Program. Plans categorized as Tier II must conduct all the monitoring requirements of Tier I plus conduct visual and photo monitoring of timber harvest infrastructure. Plans categorized as Tier III must conduct all the monitoring requirements of Tiers I and II plus storm-event based turbidity and summer temperature monitoring. Plans categorized under Tier IV are not eligible for a General Conditional Waiver and must seek coverage under an Individual Conditional Waiver.

The following paragraphs discuss recommended changes and rationale for the changes related to the various aspects of the MRP and the specific types of monitoring.

Monitoring Frequency and Schedule

First, Water Board staff recommends modifications to the MRP to improve the transition between monitoring during the active harvest period through one year after harvest is completed and years two through five monitoring. The revised MRP also contains modifications to the process of rescinding the MRP at the end of year five monitoring.

Under the current MRP, before the Discharger can proceed to years two through five monitoring or terminate monitoring at the end of year five, Water Board staff must conduct an inspection and the Executive Officer must provide a written confirmation. Water Board staff has conducted several plan area inspections at the end of year one monitoring. Staff has consistently found site conditions to be protective of water quality. Staff has determined that it is appropriate for the Discharger to proceed to year two monitoring at these sites. Due to staff's limited time base, only two Dischargers have received written confirmation that they may proceed to year two monitoring. Several more Dischargers are conducting year two monitoring strictly based on verbal confirmation from Water Board staff that they may proceed to the next monitoring phase.

Therefore, under the revised MRP, Water Board staff will conduct such inspections as necessary and appropriate and the Discharger will automatically transition to years two through five monitoring.

Secondly, the revised MRP will require the Discharger to submit a Notice of Termination (NOT) at the end of year five monitoring. Upon the Water Board's receipt of a completed NOT, the MRP will automatically be terminated. However, the Executive Officer retains the authority to require a Discharger to repeat a monitoring phase or extend the MRP past year five monitoring as appropriate.

Visual Monitoring

The Discharger, under the revised MRP, will be required to inspect all existing and newly constructed infrastructure. This includes, but is not limited to, the full length of roads, watercourse crossings, landings, skid trails, water diversions, watercourse confluences, known landslides, and all mitigation sites (as documented in the Cal Fire approved THP or NTMP) in the plan area. The revised MRP replaces the need for the Discharger to develop a Road Management Program by specifying the visual inspection locations and frequency for years two through five. The revised MRP retains the same storm-event based driven inspection frequency as the current MRP, but, instead of the Discharger developing a Road Management Program, the Discharger will be required to inspect the plan area once during the dry season and once during the wet season during years two and three. Then during years four and five, the Discharger is required to conduct a visual inspection once during the dry season, to prepare the property for the winter, and once during the wet season as triggered by a heavy storm event.

The current MRP outlines a visual inspection program that mandates a minimum of three inspections, triggered by storm-events, during the active harvest period through one year after harvest is completed. Then, for the time period of two through five years after harvest is completed, the visual inspection requirements are consistent with the Road

Management Program developed by the Discharger and approved by the Water Board's Executive Officer. A majority of Road Management Programs submitted to the Water Board do not include specific triggers for when the Dischargers should inspect the timber harvest areas during the years two through five monitoring period. Instead the Dischargers have asked Water Board staff to rely on the Discharger's best professional judgment for visual inspection frequency. This means that a Discharger may not inspect the harvest area even once during a given monitoring year. This is not protective of water quality.

The revised visual monitoring requirements continue to rely on adaptive management for the protection of water quality. If at any time during a visual inspection a Discharger discovers a failed management practice they must take immediate action to repair failed crossings, culverts, roads, and other sources of sediment.

This revision provides the Dischargers with specific visual monitoring intervals, guarantees that the Dischargers will inspect the plan's areas at least once a year, and alleviates Water Board staff from the intensive and time consuming requirement to review and provide written approval for individual Road Management Programs which have been consistently inadequate.

The revised MRP also specifies that the visual monitoring requirements represent the minimum amount of inspections for a harvest plan area to comply with the Timber Order. The Discharger is still responsible for conducting inspections above the minimum, as appropriate, taking into account site specific conditions, problem areas, and periods of above average rainfall. The schedule outlined in the revised MRP establishes minimum requirements. The Discharger is responsible for taking all reasonable measures to ensure the site is maintained for the protection of water quality.

Photo Monitoring

Based on the current MRP, photo monitoring is triggered by storm-events, forensic monitoring, and violations reporting and shall be at locations within the timber harvest plan area where timber harvest activities have the greatest risk of potential discharge (sites may be established by the Water Board's Executive Officer during or after the pre-harvest inspection). Storm-event based photo-monitoring points must include sites up and down stream of each newly constructed or reconstructed Class I and Class II watercourse crossing and landing within a Class I or II Watercourse or Lake Protection Zone (WLPZ). As a result of this requirement, Dischargers have submitted nearly 300 photos of stream crossings, landings, and mitigation sites. Water Board staff has reviewed all photos and compared them against preharvest inspection photos, field notes, and the Dischargers visual inspection logs. Each of the 300 photos depict optimal field conditions. This type of categorical requirement has never resulted in Water Board staff identifying failed management practices or field conditions that could indicate a negative impact to water quality.

The revised MRP requires the Discharger to conduct storm-event based photo monitoring at location(s) and frequencies to be established by the Water Board's Executive Officer during or after the pre-harvest inspection. If the Water Board's Executive Officer does not establish storm-event based photo monitoring locations, the Discharger is not required to conduct photo monitoring. This allows the Executive Officer flexibility to specify photo monitoring where appropriate without the categorical

requirement to conduct photo monitoring where it may not prove to be useful. The Discharger is still required to conduct photo monitoring as part of forensic monitoring and violation reporting.

Water Column Monitoring

Since January 2003, the majority of new enrollees that meet Tier III and IV monitoring criteria have been required to collect in-stream turbidity and temperature data. Water Board staff has conducted a thorough review of the data submitted per this requirement. The following is a summary of the findings accompanied with recommended modifications.

Turbidity

Water Board staff recommends modifying the MRP to require storm-event based turbidity monitoring on a limited basis and rely on visual inspections and adaptive management for the protection of water quality. The revised MRP requires the Dischargers to collect turbidity grab samples based on forensic monitoring and storm-event based turbidity monitoring if the Executive Officer determines it is necessary based on site specific conditions.

Currently, Dischargers are required to collect storm-event based turbidity monitoring data in paired sets. These paired sets are either located upstream and downstream of the timber harvest area or upstream and downstream of a newly constructed or reconstructed Class I or II watercourse crossing. The purpose of requiring the Dischargers to collect storm-event based turbidity data is to assist Water Board staff in determining if timber harvest activities are impacting water clarity and increasing sediment loading of sensitive water bodies. During analysis of the turbidity data, Water Board staff considered the following limitations and constraints:

- The only type of silviculture permitted in the Central Coast Region is selective silviculture. None of these data reflect conditions from clear-cutting.
- The Dischargers collected all data during post harvest conditions, the current MRP does not require the collection of baseline or preharvest turbidity data;
- A turbidity grab sample (the only type required in the current MRP) only provides information about the turbidity level at a specific site at the time the sample was taken and provides limited to no basis for extrapolating conditions elsewhere or at other times;
- Often times, the boundary of timber harvest plan area is defined by the stream where the Discharger is collecting turbidity data. Therefore, the turbidity data reflects conditions for which the Discharger only had partial control;
- Turbidity is an extremely variable parameter and the 12-to 24-hour window given to the Discharger to collect the data introduces an additional layer of variability;

- Due to this variability, conducting trend analysis over time for turbidity grab sample data in the same location over time or over different locations on the same date is inappropriate;
- Some of the locations where the Dischargers are collecting turbidity data are not salmon or trout bearing water bodies;
- Cal Poly, as part of the Little Creek Study, continuously tracks turbidity levels during storm-events in preharvest (i.e., natural) conditions. Cal Poly has routinely recorded turbidity levels in excess of 800 Nephelometric Turbidity Units (NTUs) following large storm-events.

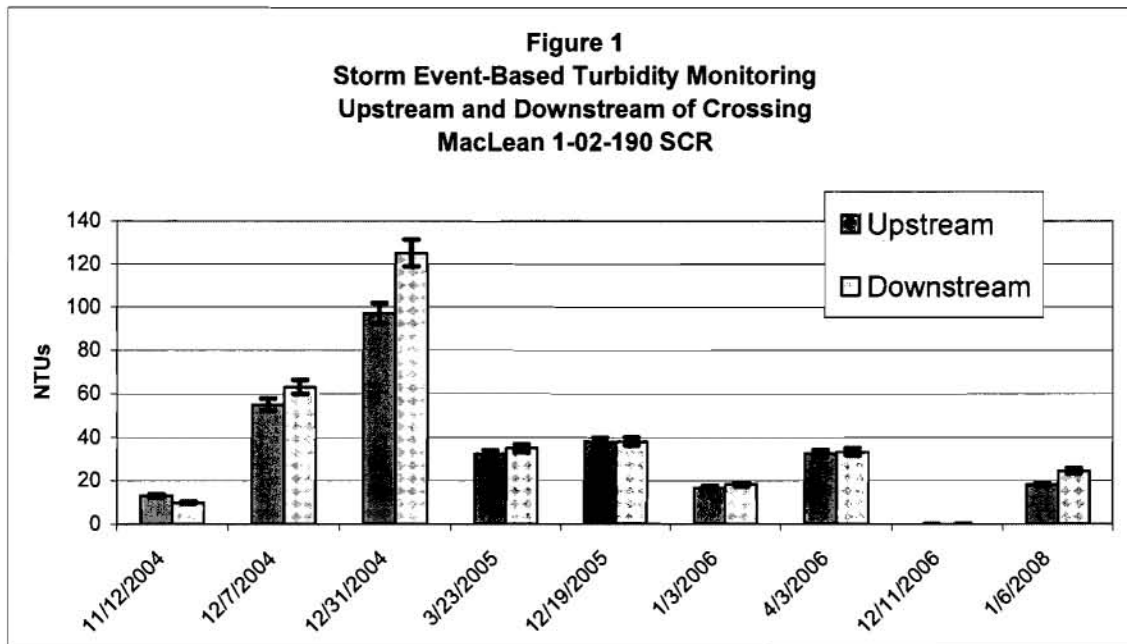
The current MRP requires the Dischargers to conduct turbidity monitoring on a storm-event basis and as required by forensic monitoring. The Dischargers submitted 369 turbidity grab sample data pairs representing five monitoring seasons (April 2003 through December 2008) and twenty-one timber harvest plan areas throughout the Central Coast Region. Water Board staff then compared the turbidity data against turbidity thresholds for salmon and trout cited in scientific literature and turbidity requirements cited in the Basin Plan. As little as 25 NTUs of turbidity caused a reduction in fish growth according to an article titled "Effects of Chronic Turbidity on Density and Growth of Steelheads and Coho Salmon" published by the American Fisheries Society (Sigler, 1984). The Basin Plan established that where natural turbidity is between 0 and 50 JTUs², increases shall not exceed twenty percent. Based on this information, and for the purposes of this analysis, Water Board staff established the following threshold: where either sample in the data pair exceeds 25 NTUs and downstream sample shows a greater than twenty percent increase from the upstream sample, in-stream conditions may be negatively impacting salmon and trout as a beneficial use of waters of the state.

Based on evaluation of these data, Water Board staff made the following observations, 1) Five percent or 19 pairs of the 369 data pairs exceeded the criteria, 2) Of the 19 data pairs that exceeded the criteria, 16 pairs, or four percent, are upstream and downstream of a plan area and three pairs or one percent of the data are upstream and downstream of a crossing, 3) The visual inspections logs associated with the nineteen pairs of data that exceed the criteria either report no failure of management practices or report correcting failed management practices at the time the Discharger discovered them during their visual inspection, 4) Water Board staff regularly conducts post-harvest inspections of timber plan areas. Water Board staff's field observations in post harvest conditions are consistent with the visual inspection logs, 5) The data range for the 369 data pairs (collected in postharvest conditions) is 0 – 834 NTUs, this data range is consistent with preharvest data collection in Cal Poly's Little Creek Study.

The chart below (Figure 1) displays storm-event based turbidity grab sample data for Timber Harvest Plan 1-02-190 SCR MacLean. The data pairs represent upstream and downstream samples of a Class II culverted watercourse crossing of the haul road. These data represent eight separate turbidity grab samples over five winter monitoring

² The Water Quality Control Plan's (Basin Plan) (Central Coast Region, 1994) numeric target for turbidity is listed in the antiquated Jackson Turbidity Units (JTUs). Yet the Dischargers are required to collect and report their turbidity data in Nephelometric Turbidity Units (NTU). There is no appropriate conversion factor for JTUs to NTUs.

seasons. These data are typical of the data collected as part of the timber harvest program in the Central Coast Region. The error bars represent the margin of error for the turbidimeter used to analyze the samples.



With the exception of the 12/31/04 event, the data pairs consistently meet the evaluation criteria for trout and salmon developed by Water Board staff. Based on the limitations and constraints for turbidity data listed above and the data from storm-events at crossings (1% exceed the threshold), Water Board staff concluded that turbidity data from crossings in the Central Coast Region do not indicate a significant effect on water clarity or sediment load.

As discussed above, the Dischargers conduct visual inspections along with turbidity grab sample collection. The Dischargers repair failed management practices that could result in a sediment discharge, such as a breached water bar, based on their visual inspections. Repairing failed management practices is not routinely accomplished based on the results of storm-event based turbidity grab sampling but rather because of visual inspections. Therefore, Water Board staff concluded it is appropriate to modify the MRP to rely on visual inspections and adaptive management for water quality protection.

The revised MRP requires the Dischargers to collect turbidity grab samples based on forensic monitoring as needed. However, the Discharger will be required to notify the Water Board within 72 hours (revised from 48 hours) and provide a written report within ten days of a violation, sediment release, or events that trigger forensic monitoring.

The revised MRP states the following in regard to storm-event based turbidity monitoring:

“The Discharger is required to conduct storm-event based turbidity monitoring at location(s) and frequencies to be established by the Water Board’s Executive Officer during or after the pre-harvest inspection. If the

Water Board's Executive Officer does not establish storm-event based turbidity monitoring locations, the Discharger is not required to conduct storm-event based turbidity monitoring."

Temperature

Water Board staff recommends modifying the MRP to require temperature monitoring on a limited basis and rely on the Forest Practice Rules for canopy retention. Dischargers will only be required to monitor temperature if the Executive Officer determines it is necessary based on site conditions.

Currently, temperature monitoring associated with the timber harvest program, like the turbidity data, is collected in paired sets. These paired sets are located upstream and downstream of the timber harvest plan area. The purpose of requiring Dischargers to collect temperature data is to assist Water Board staff in determining if timber harvest activities are impacting water temperatures. During analysis of the temperature data, Water Board staff considered the following limitations and constraints:

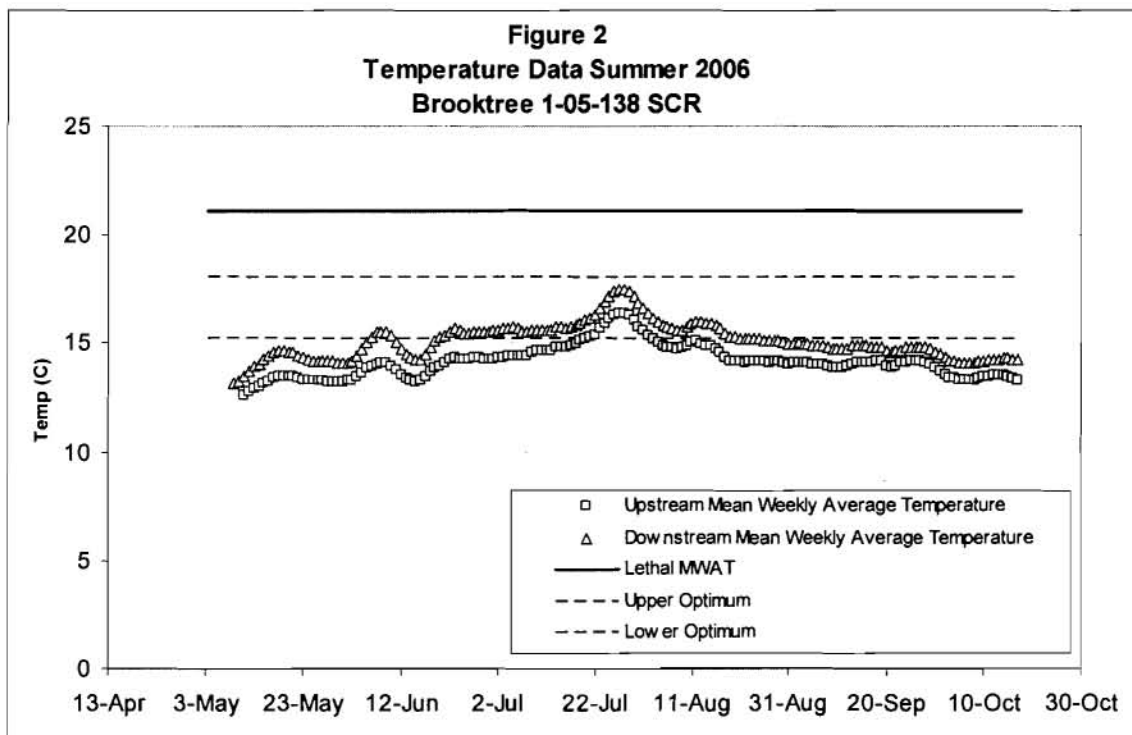
- The only type of silviculture permitted in the Central Coast Region is selective silviculture. None of these data reflect conditions from clear-cutting;
- The Dischargers collected all data during post harvest conditions, the current MRP does not require the collection of baseline or preharvest temperature data;
- Stream-flow, especially in the upper reaches of Santa Cruz County watersheds, where timber harvests typically occur is very low outside of a limited number of perennial streams. This means that Dischargers frequently submerge the temperature data probes in extremely shallow stream conditions, disconnected pools, or in streams that dry out prior to the end of the monitoring season. This is against manufacturers' recommended specifications for the temperature data probes;
- Some of the locations where the Dischargers are collecting temperature data are not salmon or trout bearing water bodies;
- Often times, the boundary of the timber harvest plan area is defined by the stream where the Discharger is collecting temperature data. Therefore, the temperature data reflects conditions for which the Discharger only had partial control.

The current MRP requires the Discharger to monitor temperature continuously from May 1 to October 15. The Dischargers have submitted thirty-three separate sample sets to the Water Board representing five summers (2004 through 2008) and twenty timber harvest plan areas. Water Board staff compared the temperature data collected by the Dischargers against the optimal temperature range for salmon and trout juvenile rearing (15 to 18°C) and their lower lethal limit (21°C) (Washington State Department of Ecology, 2002).

Based on evaluation of these data, Water Board staff made the following observations, 1) At no time did any of the data exceed the lower lethal limit, 2) Seventy percent of the

data sets showed temperature levels that stayed within or below the optimal temperature range over the entire sampling season, 3) Twelve percent of sample sets had insufficient data due to dry creek conditions prior to the end of the sampling season, 4) Eighteen percent of the data sets had temperature results that exceeded the optimal temperature range for an average of ten days, 5) Seventy percent of the data sets showed the downstream temperatures warmer than the upstream counterparts and thirty percent of the data sets showed a mix of downstream temperature warmer than upstream and vice versa, 6) The Forest Practice Rules (enforced by Cal Fire), dictate specific canopy retention requirements for post harvest conditions in riparian areas. These canopy retention requirements depend on the type of stream channel and steepness of bank slope. All plans represented by the thirty-three data sets complied with Cal Fire's canopy retention requirements.

The graph below (Figure 2) displays temperature data for Timber Harvest Plan 1-05-138 SCR Brooktree over the summer of 2006. These data are representative of seventy percent of data sets that showed temperature levels that stayed within or below the optimal temperature range for the entire sampling season. The dashed lines represent the upper and lower optimal temperature range for salmonids based on the scientific literature. The solid line represents the lethal Mean Weekly Average Temperature (MWAT) for salmonids. When temperatures remain above the MWAT for extended periods of time, mortality rates of salmonids can increase dramatically.



Considering the full set of temperature data and the limitations and constraints listed above, Water Board staff determined that timber harvest activities in the Central Coast Region do not appear to be negatively impacting stream temperature. Therefore, Water Board staff concluded that it is appropriate to modify the MRP to require temperature monitoring on a limited basis and rely on the Forest Practice Rules for canopy retention.

The revised MRP states the following in regard to required temperature monitoring:

"The Discharger is required to conduct temperature monitoring at location(s) and frequencies to be established by the Water Board's Executive Officer during or after the pre-harvest inspection. If the Water Board's Executive Officer does not establish temperature monitoring locations, the Discharger is not required to conduct temperature monitoring."

Annual Reporting

The Discharger will still be required to submit an annual report to the Water Board by November 15 of each year. The current annual reporting period is November 15 of the previous year to November 14 of current year. The revised MRP includes a revised annual reporting period from September 30 of previous year to October 1 of current year. This allows the Discharger 45 days lead time to prepare the annual report.

Major or Minor Amendments

Water Board staff recommends that the Discharger continue to be required to notify the Water Board of any major or minor amendments to an already approved Timber Harvest Plan or Nonindustrial Timber Management Plan. Water Board staff will continue to review these notifications and modify the respective MRP as necessary and appropriate.

Compliance Activities, Report Review, and Inspections

Water Board staff will conduct prioritized or random inspections to insure Dischargers are transitioning to the applicable monitoring year consistent with requirements and protective of water quality. Based on field inspections, staff may determine that management practices are failing or field conditions are not protective of water quality. In these instances, Water Board staff will recommend, to the Executive Officer, modifications to the MRP. These recommended modifications will include, as appropriate to the specific site, photo, turbidity, or temperature monitoring. Staff may also recommend an increased frequency of visual inspections or an extension of MRP duration. Water Board staff will follow-up with additional site inspections to ensure the Discharger is complying with the MRP (as required or modified by the Executive Officer) for the protection of water quality.

Occasionally, Dischargers fail to comply with the conditions of the Individual or General Conditional Waiver or the MRP. Such violations may include a failure to submit an NOI, failure to submit Annual Reports, failure to conduct visual inspections, or discharge of sediment and organic material into waters of the state. In such instances, Water Board staff will continue to pursue enforcement activities as necessary and appropriate. This is critical for the protection of water quality and to maintain the integrity of the requirements.

RESPONSE TO PUBLIC COMMENTS

Water Board staff requested that persons wishing to comment on or object to this staff reports and its attachments, submit comments in writing to the Water Board no later than

June 1, 2009. The Water Board received eight comment letters (Attachment 6) from the individuals listed below.

- I. James Hildreth, Registered Professional Forester – April 27, 2009
- II. Catherine Moore, Central Coast Forest Association Board – May 27, 2009
- III. Dick Butler, Santa Rosa Area Office Supervisor National Marine Fisheries Service and Charles Armor, Regional Manager Bay Delta Region – May 20, 2009
- IV. Kevin Collins, Lompico Watershed Conservancy – May 29, 2009
- V. Donald W. Alley, Certified Fisheries Scientist – May 31, 2009
- VI. Donna Bradford, Santa Cruz County Resource Planner IV – June 1, 2009
- VII. Jodi Frediani, Sierra Club Environmental Forest Consultant – June 1, 2009
- VIII. Crawford Tuttle, California Department for Forestry and Fire Protection – June 4, 2009

The seven letters listed above contained a significant amount of overlapping comments. Therefore, to eliminate redundancy, the following is a categorized summary of comments followed by staff's response.

General

1. **Comment:** Cal Fire appreciates and strongly concurs with Central Coast Regional Water Quality Control Board staff findings regarding timber operations.

Response: Thank you for the comment. Water Board staff appreciates Cal Fire and all stakeholders that took the time to review and comment on this item.

California Environmental Quality Act

2. **Comment:** The Timber Waiver must be reviewed under CEQA. We urge your Board to direct Staff to prepare an Initial Study and the necessary environmental review required by the California Environmental Quality Act.

Response: The Water Board is the lead agency for purposes of compliance with the California Environmental Quality Act (CEQA) with respect to the Timber Order. The Water Board prepared an Initial Study and adopted a Negative Declaration for the adoption of the Timber Order in 2005. The action before the Water Board at its July 10, 2009 meeting is to approve revisions to the Monitoring and Reporting Program (MRP) and Notice of Intent associated with the Timber Order. The Water Board is not considering a renewal or revision to the conditions of the Timber Order itself. The Water Board is not required by CEQA to prepare a new CEQA document or to prepare a subsequent or supplemental CEQA document to revise the MRP or the NOI. None of the proposed actions are a project under CEQA. The Water Board's action to revise the MRP and the Executive Officer's action to revise the Notice of Intent (NOI) will not result in any direct or indirect physical changes in the environment.

The Water Board would be required to prepare a subsequent CEQA document if triggered under the CEQA Guidelines, Title 14 California Code of Regulations section 15162. The proposed actions to revise the MRP and the NOI do not involve substantial changes in the previously reviewed project (i.e., the Timber Order) or substantial changes with respect to the circumstances of the previously

reviewed project that involve "new significant environmental effects or a substantial increase in the severity of previously identified significant effects". [Section 15162(a)(1) and (2)] The proposed action does not result in any changes to the substantive requirements of the Timber Order, which were already analyzed in the existing Negative Declaration and Initial Study. The revised MRP strengthens monitoring requirements by specifying the level of monitoring rather than leaving that up to the Discharger to determine. The revised NOI provides information to be provided sooner, but does not change the substance of the information to be provided. Neither a revision to an MRP nor the application form (NOI) result in any changes to the environment. There is also no new information of substantial importance which was not known at the time of adoption of the Negative Declaration that shows new significant environmental effects or the need for additional mitigation measures. [Section 15162(a)(3)] To the contrary, staff review of implementation of the Timber Order shows it to be working well with little or no impacts to water quality. The proposed revisions to the MRP and NOI will make the Timber Order more effective at protecting water quality.

3. **Comment:** We request that graphs summarizing all of the temperature data supplied by Dischargers on which Staff based their conclusions be included in a summary to be attached to an Initial Study.

Response: See comment response #1 above. All data related to the Central Coast Region's Timber Harvest Program is available for review upon request.

Public Notification

4. **Comment:** We are quite concerned that the public has not been adequately noticed regarding this project. We contacted staff with significant questions only to learn that the staff report had not been included. We asked that the whole package (with staff report) be posted on the web, so other interested parties could access the documents. The waiver package was posted, but not on the home page along with other documents currently under review and open for public comment. The timber waiver package was noticed under Timber Harvest as up "for consideration by Central Coast Water Board at July 10, 2009 meeting in Watsonville, CA." There is no indication that this package is "Available for Public Comment." The 303(d) list and Basin Plan Review are so noticed, why is the timber waiver program exempt from such notification and thus sailing beneath the public radar?

Response: The Water Board is required to provide ten days notice to revise the MRP, but is not required to provide any public input on reallocation of staff resources. The Water Board has provided significantly more time than required by the Water Code and the Open Meetings Act. Basin planning and 303(d) listing actions require a significantly longer public notice. Water Board staff inadvertently omitted the staff report from the original packet distributed for public review. Water Board staff appreciates that interested persons brought this to our attention. Staff immediately redistributed the packet and extended the deadline for public comments from May 25, 2009 to June 1, 2009.

Central Coast Region's Timber Harvest Program Resources

5. **Comment:** Are there potential mechanisms to recover Water Board staff costs to allow for a higher allocation of staff time to the Timber Program? We recommend the Board to require a fee for Waiver processing.

Response: Water Code section 13269(a)(4)(D) authorizes the State Water Resources Control Board (State Board) to adopt fees that may be imposed on silviculture operations. The State Board has not adopted the fee regulations at this time.

Eligibility Criteria

6. **Comment:** The Eligibility Criteria place way too high a value on the cumulative impacts and drainage density index (both out of the control of owner). The Eligibility Criteria should be modified to have a greater weight for on-site conditions (for example, a THP that minimized WLPZ (Watercourse and Lake Protection Zone) operations would benefit the landowner by keeping them in a Tier III, not Tier IV) and less weight for cumulative impacts and drainage density index.

Response: The action before the Water Board for the July 10, 2009 Board meeting does not involve revising the Eligibility Criteria so your comments will not be considered at this time. The Timber Order will expire on July 8, 2010. Water Board staff is preparing to renew the Timber Order prior to the expiration date. An audit of the Eligibility Criteria will be included as part of the renewal. All recommendations for modifications to the Eligibility Criteria submitted included in seven letters listed above will be considered during the audit.

7. **Comment:** Where did the Eligibility Criteria come from in the first place?

Response: From the adoption of the Timber Order in 2005, and see comment response #6 above.

8. **Comment:** The Discharger is required to run their plan under the Eligibility Criteria prior to the California Department of Forestry and Fire Protection (Cal Fire) preharvest inspection (PHI) and to notify staff if the plan is categorized as a Tier IV by the Eligibility Criteria. How will this notification take place?

Response: The revised Notice of Intent (NOI) requires that the Discharger submit the Eligibility Criteria Worksheets with the Notice of Intent. In addition, Water Board staff will prepare a form letter developed to inform landowners and their representatives of the need to evaluate their plan based on the Eligibility Criteria prior to the Cal Fire PHI. The form letter will also explain that should a plan be categorized as Tier IV by the Eligibility Criteria, the Discharger must notify Water Board staff prior to the PHI. Water Board staff will distribute the form letter to Dischargers when their plan is first filed with Cal Fire.

9. **Comment:** Dischargers will now determine whether they qualify for a General Waiver or an Individual Waiver. How will Water Board staff know that the information provided in the Eligibility Criteria is accurate? If there is no oversight, why would a Discharger voluntarily admit that an Individual Waiver is needed?

Response: The Dischargers are required to submit information to the Water Board indicating whether the Discharger would conclude whether they qualify for a General Waiver or an Individual Waiver. It is the Water Board's decision whether a Discharger qualifies for a General or Individual Waiver, not the Discharger. The current Timber Order already provides that the Discharger will indicate whether they qualify for a General or Individual Waiver and is not a new step in the process. Dischargers have been evaluating their plans and notifying Water Board staff of their qualification for General or Individual Waiver since July 2005. The Notice of Intent requires the Dischargers to include their Eligibility Criteria worksheets with their application. Water Board staff will continue to review and verify the information contained in the worksheets against the information in the respective THPs and NTMPs. There will be Water Board staff oversight and Dischargers have and will continue to notify Water Board staff when an Individual Waiver is needed.

Notice of Intent

- 10. Comment:** The Revised Notice of Intent (NOI) is not labeled as such. Under Landowner's Contact Information, there is no place for the Landowner's name. The Discharger is required to attach "eligibility criteria with worksheets", but there are no samples of these attached. There is no longer a requirement to identify the Registered Professional Forester who will be preparing the eligibility worksheets.

Response: Water Board staff agrees that these are deficiencies in the revised NOI. Thank you for the detailed review of the revised NOI. Water Board staff has modified the NOI in response to these recommended changes.

- 11. Comment:** Use of the Water Board NOI as the enrollment mechanism for the General Conditional Waiver could be avoided if Water Board staff were to rely on the approved Timber Harvesting Plan instead.

Response: California Water Code §13269 authorizes the Water Board to waive the requirement to submit a report of waste discharge (i.e. NOI). In July 2005 the Water Board, as part of the Timber Order, chose to require the Discharger to submit an NOI. The Water Board staff is not proposing in this agenda item to modify the existing Timber Order. Note that the current Timber Order states the following:

"The Discharger shall submit a Notice of Intent (NOI) . . . or such other form that the Executive Officer requires. This waiver shall not take effect as to a particular timber operation until the Executive Officer approves the NOI in writing."

Therefore, the Discharger must submit an NOI to the Water Board as part of the enrollment process so as to comply with the Timber Order.

Water Board Notification of Major and Minor Amendments

- 12. Comment:** Cal Fire believes the requirement for Dischargers to notify the Water Board staff of major or minor amendments can be eliminated. For Water Board

staff to require a landowner to notify them of an amendment is unnecessary since the Water Board is already being notified by Cal Fire.

Response: In July 2005 the Water Board, as part of the Timber Order, chose to require the Discharger to notify the Water Board when requesting an amendment. The Water Board staff is not proposing in this agenda item to modify the existing Timber Order. Note that the current Timber Order states the following:

“The Discharger shall notify the Central Coast Water Board concurrently when submitting a request to [Cal Fire] for a minor or major amendment.”

Therefore, the Discharger must notify the Water Board as part of the request for a major or minor amendment so as to comply with the Timber Order.

California Department of Forestry and Fire Protection Review Team

- 13. Comment:** It is Santa Cruz County staff opinion that participation on the California Department of Forestry’s review team is a better use of limited Water Board staff resources. Time spent on the waiver process could be reduced instead.

Response: Water Board staff agrees. The changes recommended in the staff report will allow Water Board staff to focus their limited time on inspections and less time on the Timber Order process.

Monitoring and Reporting Program Requirements

- 14. Comment:** It appears that temperature and turbidity sampling will be required if Water Board staff asks for this on the preharvest inspection (PHI). What conditions warrant these?

Response: The requirement for temperature and turbidity sampling will be based on site specific conditions. Examples of conditions that *may* warrant these requirements are as follows:

Temperature - Above and below a plan area, in a Class I watercourse that provides habitat to salmonids where timber harvest operations include canopy reduction in the Watercourse and Lake Protection Zone (WLPZ).

Turbidity - Above and below a crossing of a watercourse where the crossing or crossing construction may result in the discharge sediment into a receiving water that is listed as impaired for sediment / siltation on the Clean Water Act’s 303(d) list of impaired waters.

The descriptions above are only examples of conditions that may warrant monitoring requirements. Required monitoring will be based on site specific conditions.

- 15. Comment:** If Water Board staff is not on the PHI, is there no chance of turbidity or temperature monitoring being required?

Response: If Water Board staff is not on the PHI, sampling may still be required. See comment response #14 above.

- 16. Comment:** We believe it to be entirely inappropriate to allow a profit-motivated industry to monitor itself. Maintaining the public's trust that water quality will be protected for the common good is the responsibility of the Water Board. Independent, qualified monitors who are chosen by the regulator and paid by industry participants should monitor impact of logging and provide reports to the regulator. This is the only way that you may be assured that reliable data and observations will be forthcoming.

Response: Water Board staff disagrees. The Dischargers report monitoring results, based on self-monitoring, to the Water Board on an annual basis. Water Board staff reviews the reports and verifies the information by conducting postharvest inspections. During postharvest inspections Water Board staff has consistently found that the Dischargers are accurately describing site conditions in their annual reports and that site conditions are protective of water quality. Finally, self-monitoring, coupled with staff review, follow-up, and spot checking via inspections, has consistently proven to be an effective method and a necessary component for the Water Board's regulation of a full spectrum of industries and dischargers throughout the region.

- 17. Comment:** The Monitoring and Reporting Program (MRP) requires a Water Board staff inspection and written approval to end year one monitoring. Water Board staff states that written notification was given just twice and that "several more Dischargers are conducting year two monitoring strictly based on verbal confirmation from Water Board staff that they may proceed to the next monitoring phase." What about the rest of the Dischargers? Are they even conducting years two-five monitoring? Such statements in the Staff report cause us to question whether staff has sufficiently participated in the program and/or has sufficient information to determine that the current waiver program is actually protecting water quality as required under the Federal Clean Water Act.

Response: Water Board staff has sufficiently participated in the program and has sufficient information to determine if the current Timber Order is protective of water quality. Water Board staff has been unable to keep up with the demand for inspections for year two monitoring due to review of NOIs to enroll additional Dischargers. Dischargers are conducting years two – five monitoring as evidenced by routine and required submittal of annual reports. These circumstances point towards the need for modification to the program to allow more appropriate and efficient use of Water Board staff's limited time. Allowing Dischargers to automatically transition to Year Two monitoring will provide Water Board staff flexibility to focus on the most appropriate mix of enrollment, inspections and/or report reviews on the highest priority sites and for the best indicators of Discharger compliance and water quality protection.

- 18. Comment:** We are told that the, "Individual Road Management Programs . . . have been consistently inadequate." Why were these programs approved by the

Executive Officer if they were "consistently inadequate"? Why is the solution to simply do away with the requirement for a Road Management Program (RMP), rather than requiring RMPs that are adequate and protective of water quality?

Response: The Executive Officer has never approved an inadequate RMP. Water Board staff considers the Road Management Programs to be inadequate because a majority of Road Management Programs do not include specific triggers for when the Dischargers should inspect the timber harvest areas during the years two through five monitoring period. Instead the Dischargers have asked Water Board staff to rely on the Discharger's best professional judgment for visual inspection frequency. This means that a Discharger may not inspect the harvest area even once during a given monitoring year. This is not protective of water quality. Therefore, Water Board staff is recommending an alternative approach that will provide consistency within the monitoring requirements, protection of water quality, and less administrative constraints on Water Board staff. Within the "Visual Monitoring" section of the staff report, Water Board staff states:

"The revised MRP replaces the need for the Discharger to develop a Road Management Program by specifying the visual inspection locations and frequency for years two through five. The Discharger, under the revised MRP, will be required to inspect all existing and newly constructed infrastructure. This includes, but is not limited to, the full length of roads, watercourse crossings, landings, skid trails, water diversions, watercourse confluences, known landslides, and all mitigation sites (as documented in the Cal Fire approved THP OR NTMP) in the plan area."

Water Board staff does not recommend "doing away" with the requirements. But rather instead of leaving it up to the Discharger to devise the program is providing a specified inspection schedule as an alternative to ensure that Dischargers are monitoring their properties to discover and repair failed management practices they may adversely impact waters of the state.

- 19. Comment:** Requiring that Dischargers will inspect their plan areas at least once a year is preposterous and completely inadequate. No landowner can be assured that roads and crossings are intact and not discharging based on a single annual inspection. One in the summer and another in the winter are equally inadequate.

Response: Water Board staff disagrees. Visual monitoring of plan areas once during the summer and once in the winter is required after the initial more intensive monitoring schedule required during active harvest and for one year after harvest is complete. During the initial visual inspection period the Discharger will be able to identify problem areas, if any, and correct and manage during subsequent years. The Monitoring and Reporting Program also contains the following statement:

"This schedule represents the minimum amount of inspections for the harvest plan area to comply with the waiver. The Discharger is still responsible for conducting inspections above

the minimum, as appropriate, taking into account site specific conditions, problem areas, and periods of above average rainfall. The schedule outlined below is minimum requirements, the Discharger is responsible for taking all reasonable measures to ensure the site is maintained for the protection of water quality."

Additionally, Water Board staff will conduct postharvest inspections to further ensure that site conditions are protective of water quality.

20. Comment: Visual monitoring is impossible to verify and hence completely discretionary in every practical sense.

Response: Water Board staff disagrees. The Dischargers are required to provide visual inspection logs as part of their annual reports. The information in the visual inspection logs includes a description of field conditions, any problems or failed management practices, and actions taken by the Discharger to correct the failed management practices. Water Board staff has and will continue to verify the visual monitoring reports will postharvest field inspections.

Data Analysis

21. Comment: It is the view of CCFA that post-harvest visual monitoring is appropriate. The monitoring of photo points, temperature, and turbidity sampling has not, in our opinion, proved to be useful or scientifically valid in many cases.

Response: Water Board staff concurs.

22. Comment: We would expect to see the following statistics to help us evaluate the success of the current program:

- Number of plans/acres enrolled in each Tier Level under the General Waiver.
- Number of plans/acres enrolled in Individual Waivers.
- Number of NOIs submitted that were incomplete and/or incorrectly ranked and number of plans that neglected to submit NOIs prior to commencement of timber operations.
- Number of violations by type.
- Number of enforcement actions and success rate.
- Number of failures leading to discharge/severity of discharges.
- Number of data sets required vs. number received under the Monitoring and Reporting Program.
- Number of PHIs that Staff attended.
- Number of post-harvest inspections conducted by staff and dates of inspections.
- Number of minor amendments submitted.
- Number of Tier Rankings which changed as a result of minor amendments.

Response: Water Board staff disagrees. The above information would not allow for the evaluation of the success of the current program. Success of the current

program is measured by the answer to the following question, "Are timber harvest activities, including implemented management practices, in the Central Coast Region protective of water quality?"

Water Board staff has answered this question based on observations during preharvest, active harvest, and postharvest inspections as well as an evaluation of the turbidity, temperature, photo, and visual inspection logs. Water Board staff has concluded that timber harvest operations in the Central Coast Region are generally not or only minimally impacting water quality. The Water Board and Water Board staff will continue to evaluate effectiveness of the timber harvest program based on: reduction in incomplete applications, reduction in staff time and delays enrolling plans, status of harvest operations during compliance inspections or from complaints, review of monitoring and reporting information from Dischargers, and review of habitat and water quality conditions from regional monitoring efforts.

Temperature

- 23. Comment:** The staff report states that in every case, water temperatures downstream of logging operations were warmer than upstream.

Response: Water Board staff reported results incorrectly in this case. After reevaluating the data, staff has revised this statement to, "Seventy percent of the data sets showed the downstream temperatures warmer than the upstream counterparts and thirty percent of the data sets showed a mix of downstream temperature warmer than upstream and vice versa."

- 24. Comment:** We recommend that Water Board staff consult with staff from the North Coast Regional Water Quality Control Board who are developing TMDLs for instream temperature.

Response: Water Board staff concurs and contacted Bryan McFadin, Water Resource Control Engineer for the North Coast Regional Water Quality Control Board. Mr. McFadin is developing TMDLs for instream temperature. Mr. McFadin directed Water Board staff to, "The Revised Categorical Waiver of Waste Discharge Requirements for Timber Harvesting Activities on Non-Federal Lands in the North Coast Region Draft Order No. R1-2009-0038." (Burke, 2009) The staff report contains the following information:

"Direct solar radiation is the primary factor influencing stream temperatures in summer months. . . . Because shade limits the amount of direct solar radiation reaching the water, it provides a direct control on the amount of heat energy the water receives. . . . Temperature modeling results show that reducing canopy along the riparian zone from 95% to 85% does not result in a significant increase in water temperature, but reducing canopy from 95% to 50% results in an increase in stream temperature between 0.5 C to 1.5 C, with an additional 0.5 C increase when microclimate effects are considered. . . . The best strategy for maintaining (or restoring) the natural

temperature regime of surface waters is to maintain (or restore) natural shade.”

Timber harvest activities in the North Coast Region, unlike those of the Central Coast Region, include clear-cut silviculture and the reduction of canopy on Class I streams of up to 50%. Timber harvest activities in the Central Coast Region are required to conduct uneven-aged silviculture and according to Forest Practice Rules 916.9(g) Protection and Restoration in Watersheds with Threatened or Impaired Values, “Within a Watercourse and Lake Protection Zone (WLPZ) for Class I waters, at least 85 percent overstory canopy shall be retained within 75 feet of the watercourse . . .” This provision is applicable to almost all watercourses in the Central Coast Region. Therefore, the standard requirement in the Central Coast Region is the standard described by North Coast staff as the best strategy for maintaining (or restoring) the natural temperature regime of surface waters.

25. Comment: We recommend Board staff review Sullivan et al. (2000) and Welsh et al. (2001) and that the Board incorporate the following modifications for instream temperature monitoring in waters currently or historically occupied by endangered CCC coho salmon:

- Consider as an adverse effect any instantaneous temperatures in excess of 78.8°F (25°C);
- Evaluate temperature data using a 7-Day Moving Average of the Daily Maxima (7DMADM), and
- Consider as an adverse effect a 7DMADM which exceeds at any of 61.7°F (16.5°C)

Response: Water Board staff’s purpose of reviewing the temperature data was not to develop or set numeric temperature standards. Staff’s purpose when reviewing the temperature data was to determine if temperature monitoring is appropriate and if timber harvest activities in the Central Coast Region are protective of water quality. Based on the data review and considering the limitations and constraints of temperature monitoring Water Board staff has determined:

“Considering the full set of temperature data and the limitations and constraints listed above, Water Board staff determined that timber harvest activities in the Central Coast Region do not appear to be negatively impacting stream temperature. Therefore, Water Board staff concluded that it is appropriate to modify the MRP to require temperature monitoring on a limited basis and rely on the Forest Practice Rules for canopy retention.”

Therefore, water quality protection is achieved through compliance with the Forest Practice Rules not temperature monitoring, see comment response to #24 above. It is appropriate to modify the requirement for temperature monitoring.

26. Comment: NMFS and DFG propose that the timber harvest waiver take into consideration both the watershed-specific and appropriate range-wide recovery

recommendations presented in DFG's "Recovery Strategy for California Coho Salmon."

Response: Water Board staff concurs. Temperature monitoring may still be required in Class I watercourses that provide habitat to salmonids and proposed harvest operations include canopy reduction in the WLPZ. Water Board staff will continue to rely on the DFG a review team member to assist in the determination of when and where temperature monitoring is appropriate. See comment response to #14 above.

- 27. Comment:** These data also indicate that for a majority of timber harvesting plans, regardless of whether temperatures are within suitable thresholds, water temperatures at the downstream monitoring points often exceed water temperatures at the upstream monitoring points. While it is not possible to determine the extent to which these effects should be attributed to harvest operations, it indicates that there is potential for such effects.

Response: Water Board staff concurs that it is not possible to determine the extent to which temperature effects should be attributed to harvest operations. In the absence of reliable preharvest data and considering the limitations and constraints of temperature monitoring in general, it is not possible to determine if downstream monitoring points exceeding water temperature at their upstream counterparts is a natural phenomenon, the result of anthropogenic influences, or a combination of each. In any case, since the downstream levels do not indicate risk to fish, staff finds it appropriate to modify temperature monitoring requirements.

- 28. Comment:** Where temperatures are already at or exceed the suitable range, any increases in water temperature should be considered adverse effects to beneficial uses.

Response: Water Board staff concurs that the standard should be for timber harvest operations in the Central Coast Region to not increase instream temperature above what is suitable for salmonid habitat requirements. Water Board staff has concluded that the most appropriate way to achieve this goal is for Dischargers to comply with canopy retention requirements in the Forest Practice Rules. See comment response to #24 above.

- 29. Comment:** Collection of temperature data prior to harvest operations would be valuable for evaluation of baseline conditions. Comparisons between baseline conditions and post-harvest conditions would provide greater confidence when evaluating impacts of timber harvest action to instream thermal regimes potentially resulting from harvest activities.

Response: Water Board staff disagrees. This was a topic of extensive discussion prior to the approval of the Timber Order in July 2005. The practicality of enforcing such a requirement would be extremely difficult. Due to the lengthy and rigorous permitting process in the Central Coast Region, Dischargers would be unable to predict when and where they should collect temperature data. Additionally, providing the limitations and constraints associated with instream temperature monitoring preharvest data would not provide greater confidence

when evaluating impacts of timber harvest action to instream thermal regimes potentially resulting from harvest activities.

- 30. Comment:** The statement in the waiver staff report that 18% of the data sets indicated that water temperature exceeded the proposed optimal range indicates that logging may have negative impacts on fish habitat.

Response: Water Board staff concurs that when water temperature exceeds the optimal range for salmonids instream conditions may have negative impact on fish habitat. Water Board staff disagrees that this provides evidence that logging is the source of the negative impacts. Due to limitations and constraints in the temperature data it is difficult to determine the source of potential temperature exceedances, see comment response to #27 above.

- 31. Comment:** We are not sure what staff is getting at by telling us that some samples are collected upstream of fish bearing reaches. If those temperatures are too high, or insufficiently cool, those waters may adversely impact the waters of fish bearing reaches downstream.

Response: Water Board staff conducted a review of the scientific literature and found that, "In streams, increased direct short-wave solar radiation is the primary energy input that causes elevated stream temperature in the summer following removal of shading vegetation." (Ice 2001). The 2001 Ice report goes on to state, "Changes in stream temperature have the potential to be cumulative. But, equally clearly, heat is a non-conservative pollutant. It is constantly moving toward equilibrium with the environment, so any increase will not persist."

Therefore, Water Board staff is proposing changes to temperature monitoring requirements. See comment response to #24 and 25 above.

- 32. Comment:** If logging is allowed to cause warming of Hinckley Creek, then the East Branch of Soquel Creek may become too warm to provide habitat for juvenile coho salmon.

Response: See comment response to #31 above.

- 33. Comment:** We recommend that the goal should be for logging operations to cause no increase in water temperature in watersheds that are used by steelhead and / or coho salmon due to the potential cumulative negative impact that an increase in water temperature may have upon perennial stream courses downstream.

Response: Water Board staff concurs that the goal should be for logging operations to not result in water temperature increases above what is suitable for salmonid habitat requirements. Water Board staff has concluded that the most appropriate way to achieve this goal is through Dischargers complying with canopy retention requirements set forth in the Forest Practice Rules. See comment response to #24 above.

- 34. Comment:** We do not understand the summary numbers that have been provided: 33 temperature sample sets for 20 THPs over five years. We

understand that monitoring should have been conducted on all 20 plans during each of the five years of the MRP. That should have given 100 sample sets. Where are the rest?

Response: The 20 THPs did not yield 100 sample sets for several reasons. First, not all of the THPs began harvest at the start of the five year window. Many of the THPs began the harvest and monitoring at the end of the five year window and therefore yielding one or two data sets. Secondly, the current MRP does not require temperature monitoring during each of the five years of the MRP. The standard temperature monitoring requirement mandates that the Discharger conduct temperature monitoring in the first, second, and fifth monitoring years. Finally, several THPs were unable to collect temperature when field conditions were too dry to deploy data probes. Therefore, 20 THPs during sampling seasons 2004 to 2008 yielded 33 sets of temperature data.

- 35. Comment:** NMFS and DFG recommend that Order R3-2005-0066 and MRP R3-2005-0066 continue to require blanket requirements for summer temperature monitoring.

Response: Water Board staff disagrees. See comment response to #24 above.

Turbidity

- 36. Comment:** Water Board staff makes the statement that "turbidity data from crossings do not indicate a significant effect on water clarity or sediment load" without even providing a quantitative summary of data submitted by the Dischargers. One graph with eight data sets from a THP does not provide information that can be extrapolated for the whole monitoring program. We find it curious that Staff would use this particular data set as an example since it is missing data for one whole year (out of five) and includes only one data set for a second year.

Response: The data set presented in the staff report is representative of the turbidity data sets collected by the Dischargers as required by the Timber Order. Collection of the turbidity grab samples is driven by storm-events. Therefore the absence of data or low data count is reflective of a dry monitoring season. Again, this is representative of all data sets. All data related to the Central Coast Region's Timber Harvest Program is available for review upon request.

- 37. Comment:** There should be a stipulation that stormflow must rise a certain factor above winter baseflow before turbidity measurements are initiated. Rainfall early in the wet season produces less runoff than later on. A two-inch rain fall event may be too small to detect erosion caused by logging operations. We recommend that turbidity measurements be taken after 3 to 4-inch rainfall event as being more appropriate than after a 2-inch rainfall event that you require.

Response: Water Board staff agrees. The revised MRP now includes the requirement for the Discharger to, during the "Active Harvest Period plus One Year", to perform the first visual monitoring inspection within 12 to 24 hours of the first storm-event that yields three inches of rain or greater within a 48-hour period. Then the Discharger is required to conduct the next visual inspections

within 12 to 24 hours after the next two storm events that yield three inches of rain or greater within a 72-hour period. These requirements are revised from two inches of rain or greater within a 24-hour period.

Then during monitoring Years Two and Three the Discharger is required to conduct a visual inspection after the first storm event that produces three inches of rain within a 72-hour period. This requirement is revised from three inches of rain or greater within a 24-hour period.

Finally, during monitoring Years Four and Five the Discharger is required to conduct a visual inspection after the first storm even that produces four inches of rain within a 72-hour period. This requirement is revised from four inches of rain or greater within a 24-hour period.

- 38. Comment:** Turbidity monitoring should be done more quickly than proposed and immediately after, or even during rainfall event.

Response: This was a topic of extensive discussion prior to the approval of the Timber Order in July 2005. The Water Board approved the 12 to 18 hour window for collecting turbidity grab samples as the most logistically practical for Dischargers. Once a sampling event is triggered, a 12 to 18 hour window allows Dischargers a reasonable and safe time-frame to prepare and travel to monitoring locations and collect samples, many Dischargers have multiple sampling locations scattered throughout Santa Cruz and surrounding counties.

- 39. Comment:** Staff has erroneously set as a standard of protection the following: "When the threshold of either sample in a data pair exceeds 25 NTUs and downstream sample shows a greater than 20 percent increase from upstream sample, instream conditions may be negatively impacting salmon and trout as a beneficial use of waters of the state." Research cited by Staff shows that 25 NTUs without any increase reduces fish growth, thereby creating an adverse effect on salmonids. Water Board staff are ignoring the cumulative effects of increased turbidity on salmonid survival rates in their conclusions.

Response: Water Board staff's conclusions are not ignoring the cumulative effect of increased turbidity on salmonid survival rates. Staff still maintains that salmonids need to be protected and Dischargers need to prevent waste discharges into streams that cause or contribute to exceedances of turbidity water quality objectives or numeric targets that protect the beneficial uses, such as fish habitat. Staff's purpose when reviewing the turbidity data was to determine if timber harvest activities are protective of water quality. Based on this data review and considering the limitations and constraints of the data Water Board staff has determined that:

"The Dischargers repair failed management practices that could result in a sediment discharge, such as a breached water bar, based on their visual inspections. Repairing failed management practices is not routinely accomplished based on the results of storm-event based turbidity grab sampling but rather because of visual inspections."

Therefore, water quality protection is achieved through visual inspections that result in adaptive management practices and not storm-event based turbidity monitoring. It is therefore appropriate to modify the requirement for turbidity monitoring.

- 40. Comment:** We recommend that no-increase-in-turbidity standard be the goal for logging operations.

Response: Water Board staff concurs that the standard should be for timber harvest operations in the Central Coast Region to not increase turbidity above what is suitable for salmonid habitat requirements. Water Board staff has concluded that the most appropriate way to achieve this goal is for Dischargers to conduct adaptive management based on visual inspections. See comment response to #39 above.

- 41. Comment:** The San Lorenzo River sediment TMDL recommends increased inspections and regulation of forestry by your Board as a means to bring the San Lorenzo River back to health. If Timber Harvest is not a substantial source of erosion, then how do you explain your own public record?

Response: The San Lorenzo River sediment TMDL identifies timber harvest activities as a source of sedimentation. The TMDL also identifies roads and construction activities as other sources. Water Board staff is not trying to refute the conclusion about sources. Staff must regulate and control all sources of sediment to "bring San Lorenzo River back to health." Accordingly, Water Board staff will continue to conduct inspections of timber plan areas in the San Lorenzo River Watershed *and* periodically reevaluate TMDL implementation and compliance, and watershed conditions to see how the watershed is improving.

Photo Monitoring

- 42. Comment:** Photo points should be marked and documented during the review team's PHI.

Response: Water Board staff concurs. This is a routine practice between Water Board staff and the Discharger during the PHI.

- 43. Comment:** The staff report does not provide discussion of what was learned from photo monitoring conducted as part of forensic monitoring and violation reporting. We request that data be provided for these items.

Response: Since July 8, 2005, there have been two events that have triggered photo monitoring as part of forensic monitoring and violation reporting. In both cases the Discharger neglected to conduct photo monitoring. Therefore, there is no photo monitoring data available as part of forensic monitoring and violation reporting.

Water Board staff responded to these violations by issuing Notices of Violation and conducting a follow-up site inspection. In one instance two trees inadvertently slid into the watercourse. Based on Department of Fish and Game's recommendation, and Water Board staff's concurrence, the Discharger removed

one tree and left the other in place. The site is now stable and conditions are protective of water quality. In the other instance, site conditions lead to an enforcement case. This enforcement case is currently active and therefore Water Board staff will not comment further.

Eureka Gulch West Timber Harvest Plan

- 44. Comment:** We were exceptionally frustrated that the Water Board was absent for the review of the Eureka Gulch West THP, 1-08-159 SCR. Both Department of Fish and Game and Santa Cruz County staff filed non-concurrences on this plan because it proposed winter operations with no cut off date or rainfall amount. We continue to wonder why the Water Board was not engaged.

Response: Water Board staff was not absent for the review of the Eureka Gulch West THP. When Water Board staff heard of the dispute regarding the winter operations plan Water Board staff called Santa Cruz County staff, Fish and Game representative, and Registered Professional Forester (RPF) to discuss details of the winter operations plan. The RPF explained that winter operations would take place outside of the Watercourse and Lake Protection Zone and that ground operations would not be conducted during saturated soil conditions. Additionally, there are no Class I watercourses within the boundaries of the plan area. Therefore, Water Board staff determined that the proposed winter operations plan did not pose a threat to water quality. Water Board staff will continue to evaluate plans in a similar manner and direct the Water Board's limited resources towards projects with the greatest risk to water quality.

RECOMMENDATION

Staff recommends that the Water Board adopt the recommended revisions to the MRP and NOI. Adoption of these revisions to the MRP, the Executive Officer's revisions to the NOI, combined with reallocation of staff resources, will improve efficiency of Water Board's regulation while protecting water quality. The improved efficiency of the timber harvest regulatory program will provide the opportunity for an increase in compliance inspections, because staff will focus more time on tangible outcomes of the management and regulation of timber harvest operations instead of review and preparation of documents for enrollment in the Conditional Waiver of Waste Discharge Requirements. Staff will periodically (approximately every two years) evaluate whether these changes are appropriate. Staff will consider the following indications in making this evaluation: reduction in incomplete applications, reduction in staff time and delays enrolling plans, status of harvest operations during compliance inspections or from complaints, review of monitoring and reporting information from Dischargers, and review of habitat and water quality conditions from regional monitoring efforts.

References

Burke, Jim. North Coast Regional Water Quality Control Board. Staff report prepared for The Revised Categorical Waiver of Waste Discharge Requirements for Timber Harvesting Activities on Non-Federal Lands in the North Coast Region Draft Order No. R1-2009-0038. June 4, 2009

Central Coast Regional Water Quality Control Board. Water Quality Control Plan – Central Coast Region. September 8, 1994

Ice, G. How direct solar radiation and shade influence temperature in forest streams and relaxation of changes in stream temperature. National Council for Air and Stream Improvement. February 2001.

Sigler, John W., T.G. Bjornn, and Fred H. Everest. "Effects of Chronic Turbidity on Density and Growth of Steelheads and Coho Salmon" *The American Fisheries Society*. 1984

Washington State Department of Ecology Water Quality Program Watershed Management Section. Evaluating Standards for Protecting Aquatic Life in Washington's Surface Water Quality Standards Temperature Criteria. December 2002

Attachments

1. General Conditional Waiver Order No. R3-2005-0066
2. Summary of Recommended Modifications
3. Current Notice of Intent
4. Revised Notice of Intent
5. Revised MRP No. R3-2005-0066
6. Public Comment Letters

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