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June 10, 2004

Craig J. Wilson
Chief, TMDL Listing Unit
Division of Water Quality
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812

SUBJECT: NOTICE OF PUBLIC SOLICITATION OF WATER QUALITY DATA AND INFORMATION—2004 CLEAN WATER ACT SECTION 303(d) LIST

Dear Mr. Wilson,

Thank-you for the opportunity to submit numeric water quality data and information regarding the 2004 303(d) listing process on behalf of the Hawthorne Timber Company, LLC (HTC). Enclosed in this package are instream water temperature data from 10 years of monitoring efforts on the property now owned by HTC (Figures 1-4). Additionally, we have enclosed several documents pertaining to the assessment and evaluation of local watershed conditions. Each document is germane to the development of 303(d) listing criteria and is intended to further inform those involved in the process:

1. ***Wood Recruitment to Streams (Benda 2004)***. Research conducted on Hawthorne timberlands provides current information of woody-debris recruitment and erosional processes. Findings demonstrate high levels of variation exist across the landscape. Provides context for evaluating sediment source investigations and setting single-value targets that assume static conditions exist everywhere, all the time. REF32
2. ***Little North Fork Noyo River Wood Budget (Benda 2004)***. Provides detailed information on field and analytical methods used to construct wood budgets and quantify soil creep in forested watersheds. REF31
3. ***Annotated Bibliography on Percent Fines in Stream Substrate as a Measure of Watershed Condition and Health (Stillwater Sciences 2002)***. Document summarizes the most relevant literature on the use and limitations associated with fine sediment metrics (targets) developed to evaluate watershed conditions. REF34

4. ***Stream Temperature Indices, Thresholds, and Standards Used to Protect Coho Salmon Habitat: A Review (Stillwater Sciences 2002).*** This report reviews the most commonly employed indices of temperature impairment and the methods used to set thresholds for these indices. The document questions a number of assumptions regarding temperature standards in Northern California and offers research suggestions to answer these questions. Makes the key point that temperature thresholds cannot yet be determined in this region due to insufficient information regarding coho ecology in Northern California. REF 34

5. ***Case Study: McNiel Sampling in North Coast Watersheds (Wright 2004).*** Document summarizes 10-year history of McNiel sampling in streams on the Hawthorne timberlands. Includes a discussion of relevant literature and addresses the implications associated with both field and analytical methods. Underscores the need for TMDL water quality targets to be carefully selected and implemented to ensure success. REF 35

6. ***Access Database containing MWAT and MWMT Values from over 80 monitoring locations distributed in streams throughout the HTC ownership, including the Lat-Long coordinates and maps of these locations.*** REF 30

The utility and potential effectiveness of 303(d) listing criteria must be evaluated. For example, temperature “thresholds” that drove the 303(d) listing of several North Coast watersheds are not based on regionally applicable literature (e.g. Sullivan) (2000). Before regulatory temperature standards are developed for northern California, three important questions should be addressed:

1. What indices should be used for evaluating stream temperatures in regards to salmonid habitat?
2. What temperature thresholds are appropriate for protecting salmonids in northern California?
3. Where in the watershed should standards be applied?

In addition to addressing these questions, the following tasks should be conducted before more streams in northern California are listed for temperature:

- Assess the appropriateness of using the MWAT index to characterize sub-lethal, long-term temperature patterns in northern California. Sullivan concluded that in Washington streams, an MWAT could be used to represent the temperature regime for an entire summer, but this remains to be tested in northern California.
- Develop realistic food availability parameters for use in bioenergetic modeling. Sullivan et al. (2000) assume in their model that all fish have access to 30% of maximum rations. Food supply varies considerably among sites (Walters and

Post 1993, as cited in Sullivan et al. 2000) and is highly unlikely to be the same in Washington streams as in northern California streams.

- Determine the importance of summer growth for juvenile coho salmon in northern California. It is generally assumed, based on research in Washington and Oregon streams, that summer growth is crucial for juvenile salmonids. This assumption formed the basis for the thresholds suggested in the Sullivan et al. (2000) approach. In some California streams, however, it has been observed that significant growth of juvenile salmonids occurs in the spring and fall (Shapalov and Taft 1954, Bell 2001, B. Harvey, pers. comm., 2000), and that summer growth rates can be extremely low or negative (Harvey and Nakamoto 1996, W. Duffy, unpublished data). The bioenergetic ecology of juvenile coho salmon needs to be better understood before setting temperature standards to protect rearing juvenile salmonids.

Please consider that it is not reasonable to expect all streams to meet “dream-stream” standards at all locations, all the time. Nor is it appropriate to expect increasing trends and/or variation into perpetuity. Metrics developed to evaluate watershed condition should target a preferred range of conditions across the landscape rather than establish a single-value, one-size-fits-all approach that ignores known spatial and temporal variability.

Thank you for the opportunity to provide comment. Please contact David Wright at the Campbell Group if you have any questions. Our staff is also prepared to meet in person and discuss these topics at your convenience.

Sincerely,

Stephen P. Levesque
Area Manager

Appendix A: Quality assurance and control information.

Enclosures

Quality Assurance and Control Information on the HTC Stream Temperature Monitoring Program

Stream temperatures were measured continuously with temperature data loggers (Onset Computer Corp. model Hobo-Temp and OST temperature loggers) in Class 1 streams throughout the Hawthorne Timber Company, LLC (HTC) property from 1994 to 2004. Hobo-Temps are relatively inexpensive and allow uninterrupted data collection to occur throughout the critical over-summer period. Hobo-Temps were placed in pools near the bottom, and towards the deepest portion, to record in-stream temperatures. They were anchored with 95 mm diameter steel rebar and secured by 2 mm steel wire. In-stream and riparian measurements were taken at all monitoring locations.

Most literature regarding thermoregulation in juvenile salmonids suggests they preferentially utilize pool habitats when thermally stressed. Therefore, pools were determined the most appropriate habitat type for temperature measurements, and consequently, the temperature logger was placed in the water near the bottom of the deepest portion of the pool in the sample reach.

Water temperature data were recorded at ninety-minute intervals, generally from June until mid-October, then downloaded to a spreadsheet program where the daily minimum, mean, and maximum temperatures were computed. In addition to these metrics, the seven-day moving average of the daily mean temperature and the seven-day moving average of the daily maximum were also computed. The highest value for the seven-day moving average of the daily mean for the year is considered the MWAT value. The highest value for the seven-day moving average of the daily maximum for the year is considered the MWMT value.

Installation of the device occurred one day before the first day logged on the continuous temperature monitoring figures. This was done to allow the data loggers to reach equilibrium with the instream temperature regimes and to capture complete daily cycles.