October 30, 2017

Assistant Secretary Claire Jahns and
Chief Rajinder Sahota
California Environmental Protection Agency
Air Resources Board
1001 I Street
Sacramento, CA 95814

Submitted electronically at Claire.Jahns@resources.ca.gov

Re: Comments on Re: CALAND Model Development

To the California Air Resources Board:

On behalf of Sierra Club California and Ebbetts Pass Forest Watch thank you for providing this opportunity to comment on the **Public Workshop on the Proposed Natural and Working Lands Climate Change Implementation Plan and CALAND Model Development** October 13, 2017 workshop.

Global climate change is a real and present danger and we cannot afford to delay decisions to both reduce forest CO2 emissions and greatly enhance carbon sequestration. We cannot continue to accept business as usual when there is no doubt that decreasing specific destructive deforestation and degradation management practices can have a near term positive impact on our ability to make our targets in California.

We ask the CARB to continue to acknowledge that older biodiverse healthy forests with healthy soils will have the greatest likelihood for survival and resilience in our expected climate change scenarios. These forests will sequester more carbon and produce less emissions and protect our water and wildlife.

It is our understanding that the CALAND model (and implementation plan) was intended to model both forest management and conservation practices and that it will be used to help determine how to reduce emissions and increase carbon sequestration on private (industrial and non-industrial forests) and public lands (federal and state). We acknowledge the huge complexities of this task

but also understand that we must get it right.

At this time, it does not appear that the model is yet capable of helping guide informed and unbiased decision-making and it needs significant additional work. Currently there is not sufficient detailed information for the public to understand the assumptions, equations etc. The model also currently lacks the specificity needed to model both intensive management methods and conservation methods for site specific conditions. The model also contains some invalid assumptions. For instance, it the current model fails to address timing of emissions of downed wood in a manner that is factual and unbiased – it assumes complete immediate release of downed wood carbon that could take decades (large wood could take 100 years) to decay yet assumes that wood products have long life. This is just one example.

We recommend that the that the following aspects of the CALAND model and proposed next steps be addressed:

1. Additional experts in forest management and carbon issues are needed and should be added and included in the processes.

The experts listed below would bring extensive and experience from similar efforts both in the United States and around the world. They would bring additional credibility and deep knowledge to both the modeling and carbon life cycles. We believe that their expertise could significantly increase the validity of assumptions and modeling parameters. This will also improve public confidence and transparency.

- Dr. Beverly Law, Professor of Global Change Biology & Terrestrial Systems Science in the Department of Forest Ecosystems & Society at Oregon State University.
- Dr. Mark Harmon, Professor Emeritus in the Department of Forest Ecosystems & Society at Oregon State University.
- Dr. Tara Hudiburg, Assistant Professor in the Department of Forest, Rangeland and Fire Sciences at the University of Idaho
- Dr. Chris Fields, Perry L. McCarty Director, Stanford Woods Institute for the Environment at Stanford University

Dr. Law also sits on the Oregon Forest Carbon Task Force. She has been intimately involved in quantification and modeling efforts for Oregon's forest climate effort which is also still work in progress.

We support the comments by other conservation groups on this matter and encourage that funding be made available to engage recognized experts such as those mentioned above. It is not realistic that conservation groups or busy academics serve on the technical advisory committee without compensation. To develop the best models, and ultimately decisions that will help California meet our climate change targets, we urge you to use these experts.

2. Additional model transparency, and access to the model assumptions and calculations is needed. There appear also to be a number of inaccurate assumptions and there needs to be additional work on the defined management practices and parameters.

- **Consider a publishing detailed listing of the questions/scenarios that the model is being designed to answer**. For instance:
    - Will the model answer questions such as if the management practice of clearcutting was stopped and selection harvest, or a conservation approach used instead (ending the known average acres clearcut in each region/year) how would that affect forest emissions and sequestration?
    - Or, what would happen to both emissions and sequestration if harvest rotations of a million acres of plantations X years old were extended X years? X

- **Further review and fix incorrect assumptions within the model and text – such as the inaccurate assumptions about the timing of emissions such as that the carbon impacts of a management activity all occur in the same year as that activity and downed wood emissions occur immediately**.

- **CARB needs to stop using FIA data as key data for any conclusions about differences in ownership on forest health etc.**
    - The data and conclusions from the FIA data is not transparent nor verifiable due to a shroud of secrecy over the private lands samples in the FIA. The USFS has an agreement with private timber owners that they will keep all data confidential (re the identification of owners who agree to participate, as well as the sampling locations and results on these private lands). This results in a lack of transparency.
    - Furthermore, we have been told that private landowners can choose to participate or not in the FIA and that they can decline access to some potential sampling areas. This means that statistically there may be biases in the data.
    - Additionally, the years of FIA data being (2001-2010) being used for conclusions and modeling exclude the years with epic drought and insect mortality.
    - Finally, 2001-2010 FIA period does not reflect normal logging rates on private lands because the market for timber crashed during the severe recession years and logging was significantly curtailed for a number of years during this period.
    - Unfortunately, the documents from the CALAND presentations continue to assert conclusions about mortality and other matters from this data.

- **Modeling must adequately include soil and roots and reflect the impacts of various management options**. It is not apparent that the management practices often practiced re soil disturbance are clearly understood or differentiated in the model.
    - Soil carbon can represent up to half the carbon sequestered in forests.
    - Soil and root carbon sequestration varies significantly by logging management methods and the model does not yet recognize that.
    - Clearcutting in areas of California frequently uses deep soil ripping which results in increased CO2 emissions from soils and additionally heats up the soil since there is no shade from trees – this recently was shown to further increase CO2emissions http://science.sciencemag.org/content/358/6359/101 . The model needs to account

for these issues also. Ultimately, we will need to set practices, goals and criteria for improving forest soils to improve resiliency of our forests.

- **A fire baseline should also be added so that the model does not inadvertently encourage fire suppression of ecologically needed wildfire.** There is strong scientific consensus that California forests need more fire and we need to restore natural fire regimes to the landscape.

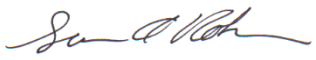
- **Table 3 in the CALAND (Management Practices Currently Implemented in CALAND and Planned for Potential Inclusion) needs some additional explanations and references and some of the parameters seem incorrect based on existing practices and rules**. **There also need to be additional defined management practices and these should be aligned with the Ca forest practice rules on private lands and USFS and other public management requirements, so the scenarios reflect reality**

    - Examples: The table lists forest clearcutting as harvest of 66% live and dead standing trees and for wood products and bioenergy. This does not reflect the prevailing clearcut methods on private lands to in California which are generally 98% removal of all green and dead trees and shrubs etc. and on site burning of debris. Also in this table Thinning is listed at 20% removal but there are many different thinning type activities that differ on private and public lands and it is not clear what is being referred to.
    - Conservation "management" options should be included.
    - Fuel breaks, Group selection, and Salvage logging are among other prevalent invasive management methods that need to be considered for the model.

Thank you for considering these recommendations. If you have any questions about these suggestions, please contact us.

Sincerely,

Susan Robinson
Vice President
Ebbetts Pass Forest Watch
srmw@comcas.net



Kathryn Phillips
Director
Sierra Club California
kathryn.phillips@sierraclub.org