TO: CA ARB

FROM: Marin Carbon Project

RE: Comments on the ARB Climate Change Scoping Plan First Update

DATE: 11/1/13

The Marin Carbon Project (MCP) welcomes the opportunity to comment on the ARB Climate Change Scoping Plan of October, 2013. Research conducted by the MCP in conjunction with UC Berkeley and UC Cooperative Extension (Ryals and Silver, 2012, Delonge, 2013) over the past six years has tested and confirmed the enormous carbon sequestration potential of California’s soils, given appropriate management intervention, including the use of compost on permanent pastures and rangeland systems. We are pleased, therefore, to see the inclusion of carbon sequestration language throughout the Scoping Plan, particularly in the working lands and agricultural sectors. Nevertheless, the enormous potential of biological sequestration –particularly soil sequestration of carbon- in California is not fully recognized in the Plan. We focus our comments, therefore, by providing suggested language ***in bold italics*** to strengthen the carbon sequestration component of the Plan.

As the Plan makes clear, reducing emissions is essential, but not enough to reduce atmospheric greenhouse gases to safe levels. We must take advantage of the enormous capacity of our managed lands to capture increased quantities of atmospheric carbon by supporting that capacity with informed management. The diversion of organics from anaerobic storage or disposal systems to aerobic composting, and utilization of compost for the enhancement of soil quality, is among the carbon-sequestering and GHG avoidance practices advocated by the MCP due to its powerful capacity to increase water holding capacity and plant productivity, which in turn drive the capacity of landscapes for further carbon capture and sequestration.

Thank you again for the opportunity to comment on the ARB Scoping Plan Update.

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**EXECUTIVE Summary:**

Para 2: California’s plan for reducing emissions is comprised of strategies to encourage

efficiency in the use of energy and resources, decarbonize our energy and fuel

supply, ***sequester carbon in managed natural and agricultural ecosystems,*** and reduce our demand for greenhouse gas (GHG) emissions-intensive goods.

ES 4: Agriculture

…There are a range of opportunities to achieve emission reductions ***and sequester carbon*** in the sector in ways that will enhance the long-term sustainability of the state’s valuable agricultural resources. To provide a foundation for taking action to cut emissions ***and increase carbon sequestration*** in the agriculture sector, it will be necessary to develop a comprehensive plan that identifies potential reduction goals, emission reduction and sequestration opportunities, and needs for additional research and incentives.

ES 5:Water

…. To ensure this precious resource is managed as effectively as possible, the state needs to employ a range of creative approaches that will cut GHG emissions, maximize

efficiency and conservation, ***improve soil water holding capacity through enhanced soil carbon sequestration*** and enhance water quality and supply reliability, while also addressing growing climate adaptation needs.

 ES 5: Waste

… The waste sector plan will provide a new organics management approach for California that will divert this material to minimize emissions at landfills and provide feedstock for critically needed ***carbon-sequestering*** alternatives to agricultural amendments and for low carbon fuel manufacturing….Developing this industry here helps ensure that the GHG emission reductions, ***soil carbon sequestration*** and environmental co-benefits, and job growth all benefit California.

ES 6: Natural and Working Lands

….A “Forest Carbon Plan” , ***a Rangeland Carbon Plan and Wetland Carbon Plan*** should be developed to describe the actions necessary to ensure that California’s forests, ***rangelands, and other natural and working lands*** are managed to optimize emission reduction and sequestration opportunities.

P. 42. Forest Sector

The Plan identifies opportunities to realize additional net carbon uptake by trees, including:

.....Establishing forest areas where the preceding vegetation was not forest. ***This strategy should be reexamined insofar as it fails to consider the potential for rangeland systems (vs forests) to sequester carbon long-term in soils, rather than above-ground vegetation. While forests are certainly potential carbon sinks, other systems, particularly grassland soils, are known to have as good or better sequestration potential.***

Pl 43. “Reducing vegetative fuels that could feed wildfires and using this waste for

biopower.” **Suggested rewrite: *“Reducing excess vegetation that could serve as wildfire fuel and diverting this material to biopower and/or soil carbon sinks as mulch and/or compost.”***

**P. 46 Agricultural Sector**

Para 2, suggested revision: California’s agricultural sector presents unique challenges ***and opportunities*** to controll~~ing~~ GHG emissions ***and sequestering carbon*** due to its wide diversity of crop and livestock production across the state.

 **p. 91; Agriculture (suggested additions):**

*Increase efforts to identify and encourage implementation of agricultural GHG emission reduction management* ***and carbon sequestration*** *practices that provide co-benefits to air and water quality. Promote sustainable agricultural practices using existing or newly established conservation measures, provide a framework for climate adaptation, maintain the food supply for a growing population, minimize cost, and support sound practical research and technology.*

*…..*A new generation of technologically advanced tools (such as remote irrigation systems) will play an important role in water conservation efforts, maximizing operational efficiency and optimizing resources that can also reduce GHG emissions. In addition, the application of precision irrigation to crops, ***and sequestration of carbon as soil organic matter,*** can reduce water use (reducing the GHG emissions associated with the energy needed to deliver the water), ***and*** reduce fertilizer use, all of which can reduce costs and emissions.

P. 93. Animal Production

….. Approximately half of the methane generated from livestock comes from manure storage lagoons. The methane generated from those lagoons can be captured by covering the lagoons and can be used to produce energy or renewable fuel (e.g., a digester). ***Alternatively, manure can be diverted to aerobic composting systems to reduce the quantity of methane produced…***.

P. 99 **Key Recommended Actions for the Waste Sector**

Consider regulatory actions ***and incentives*** to further reduce GHG emissions and remove organic wastes at landfills ***and encourage compost utilization as a soil carbon sequestration strategy***

P 101. Rangeland and Wetlands Policy

***California’s rangelands have significant carbon sequestration potential (Ryals and Silver, 2012).*** In the absence of comprehensive California rangeland carbon data and comprehensive California wetlands carbon data, rangelands and wetlands should be protected from conversion pressures and degradation that could result in carbon emissions. In addition, restoration and improved management practices to increase carbon storage should be incentivized. This is true particularly where such enhancement, protection, and conservation actions provide other important climate benefits, such as improving watershed conditions and flood protection, and providing habitat and connectivity for climate-stressed species.

**P. 103. Key Recommended Actions for Natural and Working Lands**

**Inventory Development and Research**

Conduct research to fill data gaps in California’s inventory, particularly with respect to carbon flux ***and sequestration potential*** in rangelands and wetlands...

**P. 103 Planning and Actions**

Evaluate and make recommendations on actions to ensure that the State’s forests ***and rangelands*** are operating as a net carbon sink and establishing realistic quantitative carbon sequestration goals for California forests ***and rangelands***….

**Funding**

Investigate funding opportunities to protect rangelands and wetlands from

conversion pressures and degradation that could result in carbon emissions, and to enable restoration and improved management practices to increase carbon ***capture and*** storage.