June 22, 2012

*Via electronic submittal*

Edie Chang
California Air Resources Board
1001 I Street
Sacramento, California 95814

**RE: TWS Comments on Investment of Cap-and-Trade Auction Proceeds**

Dear Ms. Chang:

On behalf of its 90,000 California members, The Wilderness Society (TWS) is writing to provide input on the development of an investment plan for the auction proceeds from the California cap-and-trade program. TWS commends ARB and California for continued leadership in developing sustainable policies for reducing greenhouse gas emissions. The cap-and-trade program offers an opportunity for California to make critically needed, transformative natural resource investments to further the goals of AB32 and address the serious threats that global warming poses to the economic well-being, public health, and environment of California. These comments are in addition to verbal testimony provided by TWS at the May 24, 2012 Public Consultation on Investment of Cap-and-Trade Auction Proceeds. We offer our assistance to work with California on these recommendations.

**1) As a threshold requirement, all investments should support AB32 goals and reduce greenhouse gas emissions. Investments consistent with AB32 should be prioritized to promote the clean energy economy and statewide job creation, maximize environmental benefits, address the impacts and effects of climate change, maximize benefits for disadvantaged communities, and maximize public health benefits.**

Using the prioritization criteria above, appropriate AB32 program investments should include, among other things, investments to advance: energy efficiency measures, distributed renewable energy generation, renewable energy, water efficiency, measures to reduce waste and promote recycled content goods, sustainable land use, and sustainable, ecologically-sound investments to increase biological carbon sequestration and reduce emissions from natural and working landscapes through restoration and conservation.

**2) The 2008 AB 32 Scoping Plan established a 5 MMT target for the forest sector, but the forest sector is not included in the cap-and-trade program. Investments in the protection, restoration and improved management of California's forests could**

**offer tremendous opportunities to generate new carbon benefits that are easily verifiable according to established and accepted methodologies.**

The AB 32 Scoping Plan conservatively estimates that California forests absorb at least 5 MMT of carbon annually, but land-use conversion trends and growing emissions from disease and wildfire under a "business as usual" scenario will reduce this carbon sequestration benefit unless action is taken. In fact, logging, deforestation, and devegetation have removed an estimated 125.9 MMT of carbon from California's forests since 1950.[1] Given this, the Scoping Plan simply proposes a modest and highly achievable "no net loss" target for the forest sector.

The Scoping Plan also notes that other activities, including forest conservation, restoration and improved forest management, could lead to an additional 2 MMT of annual carbon emissions reductions by 2020, with even greater emissions benefits realized beyond 2020. The Scoping Plan notes that afforestation and reforestation activities alone could offer significant long-term benefits of more than 23 MMT per year by 2050.

**3) Forest investments are not the only natural resource investments that could contribute very significantly to California's AB32 goals and reduce greenhouse gas emissions. The cap-and-trade auction proceeds offer California an unprecedented opportunity to invest in critical, forward-looking, transformative natural resource investments that will be needed to ensure not only that the State is able to achieve its greenhouse gas emissions reductions goals, but also that the State is able to continue to provide essential services to its citizens, has fully addressed disaster preparedness, and has adequately prepared for a sustainable, environmental future.**

Plants and soils store carbon. When natural resources are converted to other uses or degraded, they not only generate significant carbon emissions, any future capacity to store carbon on those lands is also lost. California lands that help store carbon include forests, timberlands, rangelands, wetlands, watersheds and open space. As noted in the verbal testimony which TWS provided at the May 24, 2012 Public Consultation on Investment of Cap-and-Trade Auction Proceeds, in the Sacramento-San Joaquin Delta alone, the drainage of 1,800 square kilometers of wetlands over the last century has released 0.9 Giga tons (or billion tons) of carbon dioxide - which is approximately the

[1] Liu, J. et al. (2011). Estimating California ecosystem carbon change using process model and land cover disturbance data: 1951-2000. *Ecological Modeling* 222, 2333-2341.

mass of about one quarter of the total above ground pool of carbon in California forests.[2] Since the 1850's, 90 per cent of California's original coastal wetland acreage has disappeared, and many of the remaining wetlands are in danger of being further degraded or destroyed due to landfill, diking, dredging, pollution, and other human disturbances.[3]

Investments in the protection and restoration of wetlands, including California coastal wetlands, can help California achieve its greenhouse gas reduction goals while also providing other returns in the form of critical environmental and human health benefits such as enhanced water quality, habitat, prevention of shoreline erosion and flood protection.[4] These additional benefits will become increasingly important in the face of anticipated climate impacts including water scarcity, ecosystem stressors, and more extreme weather events.[5]

Green infrastructure investments, such as riparian buffers and headwater protection and restoration, can also be a cost-effective part of transformative measures to fold water management into fully integrated natural resource management that not only reduces greenhouse gas emissions (for instance by reducing the energy footprint associated with the treatment of water), but also helps address expected climate impacts such as changing water supply availability and losses of marine and forest biodiversity.[6]

**4) Natural resource investments from cap-and-trade auction proceeds must be ecologically sound and not result in perverse environmental outcomes.**

While TWS supports natural resource investments from cap-and-trade auction proceeds, it notes that any such investments should not only reduce greenhouse gas emissions,

---

[2] Crooks, S., D. Herr, J. Tamelander, D. Laffoley and J. Vandever (2011), Mitigating Climate Change through Restoration and Management of Coastal Wetlands and Near-shore Marine Ecosystems: Challenges and Opportunities, The World Bank Environment Department, Paper number 121.

[3] http://ceres.ca.gov/ceres/calweb/coastal/wetlands.html

[4] There are a variety of different wetland types including, for example, freshwater wetlands, forested upland peats, and coastal wetlands. Different wetland types store and release greenhouse gases in different ways. Some wetland types may have methane emissions that negate or overwhelm carbon benefits, but other wetlands restoration projects do reduce greenhouse gas emissions. *See* Land Use, Land Use Change & Forestry (2000), IPCC, Section 4.4.6 Wetlands Management and On AOFLU, 'wetlands management' and the road to land-based accounting: Q&A (2010), Wetlands International.

[5] *See* Preparing for the Effects of Climate Change - A Strategy for California, The Pacific Council on International Policy (2010).

[6] *See* Talberth, J. and C. Hanson (2012) Green vs. Gray Infrastructure: When Nature Is Better Than Concrete, World Resources Institute. http://insights.wri.org/news/2012/06/green-vs-gray-infrastructure-when-nature-better-concrete *See also*, Water Sector Summary and Analysis (2009), California Climate Action Team Subgroup Report.

further the goals of AB32 and be prioritized as otherwise noted in this letter, but such investments should also be reviewed to ensure that they are ecologically sound and do not result in perverse outcomes that degrade the California environment. For instance, while TWS supports investment in reforestation activities, it does not support afforestation activities in natural non-forest habitats in an attempt to increase carbon sequestration or storage. Similarly, TWS would not support investments in broadcast fertilizer use to promote tree growth. Not only can the greenhouse gas benefits of such fertilizer use be ambiguous (for instance due to nitrous oxide emissions from nitrogen-based fertilizers applied to the land and from nitrous oxide emissions from aquatic dead zones created by fertilizer use), such fertilizer use also presents serious water and soil pollution risks.[7]

**5) TWS encourages California to further examine how public lands might support AB32 goals and achieve greenhouse gas reductions.**

A significant portion of California's land base is comprised of state and federal public lands. Of the approximately 33 million acres of forest in California, federal agencies (including the US Forest Service, Bureau of Land Management and National Park Service) own and manage 19 million acres (57%) including 2.2 million acres of old growth forests; while state and local agencies own another 3%.[8] Carbon benefits are one among many important values and functions provided by our public lands.

Once again, TWS appreciates the continued leadership of ARB and California in developing sustainable policies for reducing greenhouse gas emissions. California's

[7] See Park, S., P. Croteau, K. A. Boering, D. M. Etheridge, D. Ferretti, P. J. Fraser, K-R. Kim, P. B. Krummel, R. L. Langenfelds, T. D. van Ommen, L. P. Steele & C. M. Trudinger 2012. Trends and seasonal cycles in the isotopic composition of nitrous oxide since 1940. *Nature Geoscience* 5, 261–265 and Codispoti, L. 2010. Interesting Times for Marine $N_2O$. *Science*, Vol. 327 no. 5971 pp. 1339-1340.

[8] http://ucanr.org/sites/forestry/California_forests/ and http://www.fs.fed.us/r5/rsl/publications/oldgrowth/oldgrowth2002.html. A number of studies have now shown that old growth forests may act as net carbon sinks for centuries, contrary to the previously held belief that forests reached maximum productivity at an intermediate age, becoming neutral, or even negative, in terms of carbon sequestration. *See i.e.,* (1) Zhou, L., Dai, L., Wang, S., Huang, X., Wang, X., Qi, L., Wang, Q., Li, G., Wei, Y. and Shao, G. 2011. Changes in carbon density for three old-growth forests on Changbai Mountain, Northeast China: 1981-2010. Annals of Forest Science 68: 953-958; (2) Luyssaert, S., D. Schulze, A. Borner, A. Knohl, D. Hessenmo, B. Law, P Ciais, and J. Grace 2008, Old-growth forests as global carbon sinks. Nature 455:215; and (3) U, K.T.P., M. Falk, T. Suchanek, S. Ustin, J. Chen, Y. Park, W. Winner, S. Thomas, T. Hsiao, R. Shaw, and T. King, R. D. Pyles, M. Schroeder, and A. Matista. (2004) Carbon Dioxide Exchange Between an Old-growth Forest and the Atmosphere. Ecosystems 7: 513-524.

natural resources offer significant carbon sequestration and storage services, as well as a myriad of other public health and environmental benefits. The cap-and-trade program offers an opportunity for California to make critically needed, transformative natural resource investments to further the goals of AB32 and address the serious threats that global warming poses to the economic well-being, public health, and environment of California.

We offer our assistance in working on the recommendations in this letter. If you have any questions, please contact Ann Chan at ann_chan@tws.org.