MS Thesis
Department of Environmental Science and Policy
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Title: An Additionality Approach to Global Blue Carbon Conservation

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ABSTRACT

Recent reports project an increase in atmospheric carbon dioxide levels significantly greater than what has been previously projected. One way to combat these changes is by conserving blue carbon ecosystems. “Blue carbon” ecosystems, such as mangroves, seagrasses, and salt marshes, have the capacity to sequester high levels of atmospheric carbon dioxide and combat climate change. While these are some of the most productive ecosystems, they are also some of the most threatened due to high rates of anthropogenic land conversion activities. It has been suggested that incorporating these ecosystems for carbon financing would benefit conservation efforts. The Verified Carbon Standard (VCS), a leading global carbon offset mechanism, has recently approved a methodology for carbon offsets for blue carbon habitat restoration in the United States. One of the requirements of all carbon offsets is that they are additional, or indication that these projects would not have been implemented without “additional” finances from carbon offset generation. Given the VCS threshold, the objective of this study is determine if less than 5% of global blue carbon has been conserved, establishing a predetermined criteria to deem blue carbon conservation project “additional”. Geospatial data were used to determine the extent of blue carbon ecosystems which fall into coastal and marine protected areas and were analyzed to determine what percent of global blue carbon ecosystems are being conserved. The results of this study indicate that around 4% of blue carbon is currently being conserved. Since the overall percent conserved results in less than the 5% threshold, this indicated that all new voluntary conservation projects could be considered additional and the results from this study could be incorporated into the development of a greenhouse gas offset methodology for tidal wetland and seagrass conservation. Based on the best available data, policy suggestions are provided to improve blue carbon conservation efforts. These suggestions target the incorporation of blue carbon ecosystems into the carbon market, and encourage policy makers to incorporate blue carbon conservation into climate change mitigation and adaption policies.