

# Carbon stocks of mangrove forests in Mexico

## Project team

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## Timeframe

2011-2015

## Project description

Mangroves are one of the most carbon-rich ecosystems on earth and are key participants in carbon mitigation programs. In order for mangroves to be included in carbon offsets, it is necessary to know how much carbon they store and sequester. In this project, we had two objectives, first, to assess the carbon content of mangrove forests along climatic and geomorphological gradients throughout Mexico. The second objective was to provide technical training for measuring carbon stocks in mangroves to stakeholders that could benefit from carbon offset programs. The participants of the project included national agencies, NGOs, park rangers, land owners, higher degree students and researchers. The overall goal of the project was to assist with adaptation to climate change in Mexico by providing opportunities for increasing mangrove conservation and rehabilitation through carbon markets.



## Outcomes

Throughout the project, we conducted four workshops in four national protected areas of mangroves in Mexico: Sian Kaan, Celestun, La Encrucijada and Bahia Magdalena. During our workshops we obtained field data that allowed us to calculate carbon stock and sequestration potential of four mangrove regions throughout Mexico.

The information obtained during our project has started to be translated into benefits for mangrove conservation and restoration in Mexico. For example, funding for the restoration of mangroves in Sian Kaan, a Biosphere Reserve in the Mexican Caribbean, were partly obtained thanks to our data that showed the high carbon storage potential of these mangroves. Additionally, in 2017, the first carbon trading program that included mangrove forests in Mexico was established between Chiapas and California, US. Our data on mangrove carbon stock is informing on the value that mangroves should have in this trading program. Finally, we are working with NGOs (Wildcoast) to establish a carbon market that will ensure protection of mangroves in Baja California, Mexico, based on their capacity to store carbon.

Additionally, we established a national protocol for the assessment of carbon stocks for mangroves in Mexico, which can be used for mangroves throughout the American continent. Link to protocol:

[http://webdoc.sub.gwdg.de/ebook/serien/yo/CIFOR\\_WP/117.pdf](http://webdoc.sub.gwdg.de/ebook/serien/yo/CIFOR_WP/117.pdf)

Overall, this project has shown that good science can be translated into benefits in conservation and restoration of valuable and endangered ecosystems, such as mangrove forests.

## Funding

USAID, US Agency for International Development, US Forest Service

## Partners

Fondo Mexicano para la Conservación de la Naturaleza ( Mexican Trust fund for the conservation of Nature);  
CONANP - National Commission of Natural Protected Areas, Mexico; CONAFOR, National Commission of Forestry

## For more information, contact

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## Publications

Adame MF, B Fry (2016). Source and stability of soil carbon in mangrove and freshwater wetlands of the Mexican Pacific coast. *Wetlands Ecology and Management*. 24: 129-137

Adame MF, V Hermoso, K Perhans, CE Lovelock, JA Herrera-Silveira (2015) Selecting cost-effective areas for restoration of ecosystem services. *Conservation Biology* 29: 493-502

Adame MF, NS Santini, C Tovilla, A Vázquez-Lule, L Castro, M Guevara (2015) Carbon stocks and soil sequestration rates of tropical riverine wetlands. *Biogeosciences* 12: 3805-3818

Adame MF, JB Kauffman, I Medina, JN Gamboa, O Torres, J Caamal, JA Herrera-Silveira (2013). Carbon stocks of tropical coastal wetlands within the karstic landscape of the Mexican Caribbean. *PLoS ONE*. 8: e56569.

Kauffman JB, DC Donato and MF Adame. Protocolo para la medición, monitoreo y reporte de la estructura, biomasa y reservas de carbono de los manglares (*Protocols for the measurement, monitoring, and reporting structure, biomass and carbon stocks of mangroves*) (2014) Working paper 117, Bogor, Indonesia, CIFOR