

El Dátil– Challenges of Planting Mangroves in Baja California Sur as a

response to new environmental regulations Dr. Jane Dmochowski, ENVS 3100, Fall 2023

Abstract

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The case study of El Dátil showcases a mangrove restoration project initiated by a local Women's Group, and supported by Wild Coast as a response to growing environmental regulations that restricted fishing activity. Mangrove restoration processes faced challenges of funding, increasing climate disasters, and backlash from men. The study analyses the the importance of arid mangrove restoration, community involvement, and economic benefits in an area that faces growing environmental and economic challenges.

Background

Mangroves in Baja California Sur provide critical fish and wildlife habitats, acting as a natural barrier against coastal erosion and flooding, offering food resources, enhancing water quality, and sequestering and storing carbon. El Dátil community had to quickly learn to manage mangrove restoration when certain fishing practices became illegal due to Environmental Regulations. Women took on this task, as they saw they could make an income while helping to reduce climate related impacts. COSTASALVAJE responded to their ask for training and support.

Stakeholders

- Philanthropy (One Earth)
- Mangrove restoration (Wild Coast)
- El Dátil community members (350~)
- El Dátil Women (11, all ages)
- El Dátil leader (Minerva Carrillo Larios)
- El Vizcaino Biosphere Reserve

References

Adame et al., 2018a "The undervalued contribution of Mangrove protection in Mexico to carbon emission targets." Wiley Conservation Letters wileyonlinelibrary.com/journal/cons
 Adame et al., 2018b "Loss and recovery of carbon and nitrogen after mangrove clearing" Ocean and Coastal Management 161: 117-126.
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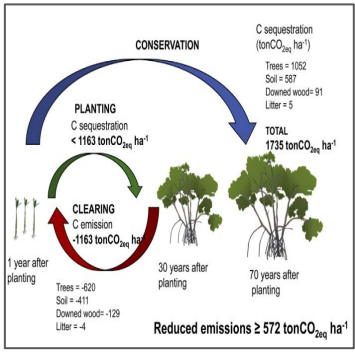


Fig. 1 El Dátil Estuary location and (2) and mangroves in the Gulf (Arbuto-Oropeza et al., 2008). Fig. 2. Conceptual diagram of avoided emissions resulting in changes from clear cutting to conservation. Thirty years after planting the carbon emitted is neutralized by trees, soil, downed wood and litter. After 70 years, there is a positive balance of 572 tons per hectare (Adame, 2018). Fig. 3. (right) Relationship between landings (fish and blue crab) and economic value (price paid to fishermen by local fishing cooperatives) against the area of mangrove fringe in the Gulf of California. (Arbuto-Oropeza et al., 2008).

Data and Details Growth and CO2

- Growth:** Here, mangroves grow as little as 1–2 inches per year. Adult mangroves (2–4m) take around 20 years to grow.
- Mangrove restoration:** projects have to be long-lasting and intentional to have tangible impacts on carbon sequestration, ecosystem health, and coastline protection.
- Sequestration:**
- 50k adult mangrove trees on 10 ha in El Dátil Estuary can sequester 13,800 tons of CO2.
 - Mangroves in Mexico sequester between 1.2 and 7.0 tons of CO2 per ha per year in their soil (Adame et al., 2015b; Ezcurra et al., 2016, cited in Adame et al., 2018a).
 - Including wood and roots, mangroves may sequester an additional 19.6 tons of CO2 a year, equivalent to 46% of the committed reductions from land use sector in Mexico (Adame et al., 2018a).



Fig. 4. Planting mangroves in El Dátil (Wild Coast).

Discussion and Challenges

Financial support. 50k mangrove propagules in 10 ha require \$100k. They received \$25k in 2023 and will get \$15k in 2024, from OneEarth

Storms and flooding. In 2022 a storm flooded the coastline, and there was a survival rate of about 50%

Skepticism from male family members. As a woman-leader startup that has onboarded only women and young girls, husbands and fathers do not approve easily of the relevance of the project (2008)

Conclusion

El Dátil case study underscores the significance of community-led mangrove restoration. Challenges include addressing financial constraints, fostering inclusive community engagement, and emphasizing long-term restoration. The broader implications stress the need for global recognition of arid mangroves, aligning definitions with their unique characteristics for effective conservation efforts worldwide.

Teaching the Case

- Learning Objectives:**
- Understand the history of el Dátil and why they are looking for mangroves for economic inflow
 - Understand the ecological importance of mangroves
 - Analyze the challenges of arid mangrove planting
- Pre-Class Assignment**
- Read Case Study and answer pre-class questions
- In-Class Assignment**
- In small groups answer in-class questions
 - Propose strategies to address the challenges faced
 - Debate the potential trade-offs between economic development and environmental and social concerns