Full Solution

"Pesca Responsable": responding to climate change through sustainable responsible fishing and mangrove rehabilitation

by CONANP Mexico
National Commission of Natural Protected Areas

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Summary

By consolidating a participatory management strategy based on the strengthening of fishing communities within the Biosphere Reserve “La Encrucijada”, CONANP has managed to promote a high level of community self-organization. Fishing cooperatives now are able to negotiate, regulate and enforce, amongst themselves, their own agreed best practices for sustainable, responsible fishing and mangrove rehabilitation, in order to reduce climate risks such as storm events and prevent coastal erosion.

Classifications

Region
North America

Scale of implementation
Local

Ecosystem
Estuary, Mangrove, Marine and coastal ecosystems

Theme
Adaptation, Fisheries and aquaculture, Outreach & communications, Protected area management planning, Restoration, Sustainable livelihoods

Challenges
Land and Forest degradation, Loss of Biodiversity, Salinization, Tropical cyclones / Typhoons, Unsustainable harvesting incl. Overfishing, Lack of alternative income opportunities, Poor governance and participation

Sustainable development goals
SDG 1 – No poverty , SDG 8 – Decent work and economic growth , SDG 12 – Responsible consumption and production , SDG 13 – Climate action , SDG 14 – Life below water , SDG 15 – Life on land

Aichi targets
Target 1: Awareness of biodiversity increased , Target 4: Sustainable production and consumption , Target 5: Habitat loss halved or reduced , Target 6: Sustainable management of aquatic living resources , Target 10: Ecosystems vulnerable to climate change , Target 11: Protected areas , Target 14: Ecosystem services , Target 15: Ecosystem restoration and resilience

(I)NDC Submission

Location

Reserva de la Biosfera La Encrucijada, Villa Comaltitlán, Chiapas, Mexico

Challenges

1) Environmental:

a) Meteorological events are, from one side, reducing the habitat for fish reproduction because of sedimentation when there are floods; and, from the other side, long period of drought are affecting the salinity balance of water bodies and mangrove systems.

b) The erosion of the upper and the middle part of the basin has increased the sediment depostion en lagoons, estuaries and mangroves ecosystems, causing the loss of depth. On the other hand, the pollution of water bodies is related to the use of agrochemical products for agricultural activities and from industrial discharges.

2) Socio-economic: to improve the level of:

a) community self-organization;

b) direct access to markets, without the costly use of mediators;

c) communitarian participation on sustainable practices;

d) incomes.

Beneficiaries

-591 fishermen of 8 fishery communities: restoration and rehabilitation of 84 km of channels in the mangroves system, and from the maintenance of species habitat

-Their wives: new economic activities-aquaculture, handcraft, environmental education

Building blocks

Creating a sense of belonging to local ecosystems

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Increasing community self-organization

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Creating adaptive capacity as a buffer against risk

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Rehabilitating channels and hydrological flows in mangroves

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How do the building blocks interact?

Building block I “Creating a sense of belonging to local ecosystems” has been a foundation for the rest of the building blocks in this solution, whether it is about creating a willing workforce for the arduous work of rehabilitating channels and flows in the mangrove systems (building block IV), supporting the creation of improved levels of self-organization needed to define and self-regulate policies for practical sustainable fishing (building block II), or providing the confidence necessary to embark on additional economic activities related to the sustainable use of mangrove systems, which can improve adaptive capacity to the cascading risks affecting the reserve (building block III). The other building blocks all also nurture the sense of identity: working in physically rehabilitating the mangroves and seeing the benefits from doing so; as will the confidence gained from successfully sustainably managing and making use of the resources within the ecosystem to maintain livelihoods.

Impacts

After two years of working along and of strenghtening CONANP's processes, and with the participation of the fishing cooperatives of 8 local communities (with a total population of 3029 habitants), 591 fishermen have beneficieted directly. CONANP has worked to improve their capacities on:
-Improved, sustainable fishing practices, and increased catches, which are possible because of protection and conservation actions on the mangroves systems, which have been substantially improved. The rehabilitation of 84 km of canals, estuaries and lagoons has improved the hydraulic circulation within the mangroves leading to the improvement of water quality, increased ecosystem productivity, greater mangrove seed dispersal, and more diversity of species entering the mangroves.
-Increased incomes for eight fishing communities, resulting from increased production and sale of fishery and artisanal products, as well as from payments for ecosystem services which the cooperatives carry out aimed at the rehabilitation of the mangrove.
-Improved systems of governance within fishing communities which have strengthened social cohesion within the zone, as well as providing the confidence needed to initiate changes requiring high levels of organization, such as the development of direct forms of commercialization for their local products, without involving costly intermediaries.

Story

La Encrucijada Biosphere Reserve (area: 167,310 ha) contains two large coastal lagoon systems including some of the best preserved mangrove forests on the American Pacific. Nestled between ocean and mountains, the reserve is home to fishing, ranching and farming communities. Due to the mountain topography, the latter two activities on the northern slopes of the reserve can rapidly affect the coastal mangrove systems to the south via connected river systems. Climate change and an increase in the frequency of tropical storms results in a cascade of risks: storms damage the mangrove systems and negatively affect the dynamics of fish production and migration, altering the delicate hydrological balance between salt- and freshwater. Increased storm flooding increases sediment flows downriver into the channels and water bodies of the mangrove ecosystems. Flooding carries contamination from ranching and farming activities into them as well. All of the above have the potential to endanger the sustainability of the mangroves and local fish stocks, and thus weaken coastal livelihoods. In response, CONANP has consolidated a community-driven participatory management strategy based on strengthening the sense of identity and belonging of the communities as a central part of the biosphere reserve. Starting with fishing communities, this sense of belonging was promoted by involving the fishermen in the rehabilitation and maintenance of mangrove ecosystems, and hydrological flows. Both contribute to the improvement of local fisheries. Additionally, women and children have also been involved in activities related to the benefits of the sustainable use of local resources for their livelihoods. Community self-organization has been actively strengthened, as well. This has resulted in: i) fishing cooperatives negotiating and regulating amongst themselves to agree and enforce best practices for sustainable fishing, and ii) increasing their capacity to find direct markets for their products, without the need for intermediaries. Community belief in, and ownership of, the solution to sustaining their environment and their livelihoods has been key. To provide adaptive capacity to the fishing communities, in terms of secondary income sources, CONANP has also supported fisherwives to diversify economic activities towards mangrove-related i) ecotourism services, such as bird-watching tours, and ii) niche product production, such as mangrove flower honey.

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Resources

Climate Change Adaptation Plan for La Encrucijada | PDF 1,15 MB

Other Organizations

Portals

This solution is published in the **Ecosystem-based Adaptation**, Marine and coastal and Protected areas portal.