

The background of the slide is an underwater photograph. It shows various types of seaweed and coral structures in shades of blue and green. The lighting is soft, creating a serene and natural environment. The text is centered in a white, bold, sans-serif font on a semi-transparent green rectangular background.

Marine Reserves Pilot Project at Isla Natividad

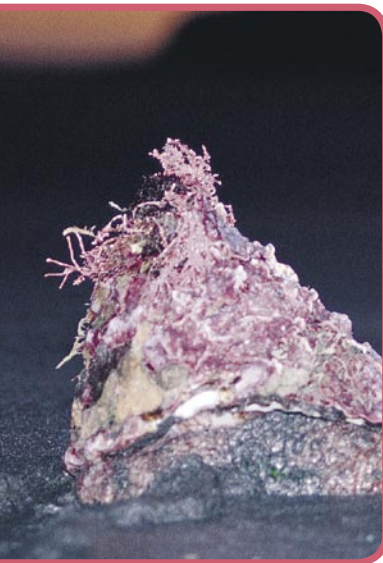
A PRECIOUS ECOSYSTEM

Under good environmental conditions, kelp forests offer a variety of valuable fishing resources like abalone, lobster, and large edible fish. They also provide key environmental services to our society; they protect the coastline from erosion and a large amount of commercial species recruit under the kelp canopy. Paradoxically, due to intense interdisciplinary research during the last 30 years, **kelp forests also offer one of the best-documented examples of how overfishing might dismantle ecosystem functions dramatically** ^[1]. Chronic overfishing wipes out various apex predators. As a consequence, kelp-grazing-herbivores populations overgrowth until the ecosystem switches from a kelp dominated area to a sea urchin barren area ^[2,3]. With the abalone being a natural competitor of sea urchins, abalone depletion also benefits the population of this deforesting species. Abalone is a high-value commercial resource and its species are among some of the most heavily depleted marine organisms in the California Current marine ecosystem ^[4]. **Some abalone species, particularly the white abalone *Haliotis sorenseni*, are threatened to extinction and the majority of their populations are currently a small fraction of their historical numbers** ^[5].

FULLY PROTECTED RESERVES: A PROMISING TOOL FOR ECOSYSTEM-BASED FISHERIES MANAGEMENT

Few well-documented examples offer insight on how the protection of certain amount of kelp forest could help in recovering depleted species and ecosystem resilience. Nevertheless, **evidence from several small fully-protected reserves showed promising outcomes** ^[6]. For example, a very small fully-protected reserve in **Anacapa Island**, part of the Channel Islands National Park in the USA, has revealed that the changes triggered by overfishing can be rapidly reversed and kelp forest attributes recovered ^[7]. After just twenty years of protection in this small protected area **the density of lobster increased six-fold, urchin density decreased from 32 organisms per sq m to 2.44 and the kelp cover increased from 5 to 26%**. Unfortunately, this site was so overfished at the time reserves were established, that abalone species never showed a sign of recovery.

Isla Natividad is located south of Isla de Cedros in central Baja California, Mexico. At this island we can still find one of the most dense kelp forests south of the California Current rim: **the ecosystem is in relatively good shape**. Although obviously depleted from its historical records, abalone is still a commercially exploited species here; in Natividad Island sea urchins have not invaded the area. **Since 2003, COBI has negotiated a six-year commitment with the fishing cooperative to fully protect three of the 42 fishing grounds as a pilot project.** These grounds cover more than 4% of their fishing territory. Stopping the extraction of pink and green abalone, spiny lobster, conch, sea urchin, sea cucumber, and red algae represents a potential annual investment of US\$300,000 for the cooperative on this project, in addition to the US\$100,000 per year they spend on 24/7 surveillance of all areas under their concessions. **The cooperative expects that the monitoring data will help them decide whether fully-protected reserves should be part of the**



Isla Natividad ●



management strategy after 2011, when their fishing concession is up for renewal, and ask to the fishing and environmental authorities the formal inclusion of this areas in the management plans.

A FIELD EXPERIMENT

The project offers a unique experiment that will have the Before-After Control-Impact (BACI) scientific rigor scholars are claiming for ^[8]. There will be three replicates of the no-take “treatment”, three controls of fishing parcels, and surveys will start at the time reserves are officially established. It also offers the opportunity to explore fishers’ rationale behind full protection and conservation attitudes in general.

The project will find out how abalone and other important commercial species recover inside the reserves and create a spillover effect to adjacent fishing grounds. It will also address the question of how these reserves contribute not only to increase the kelp cover, if they do so, but to strengthen ecological redundancy as a sign of ecological resilience ^[9]. To assess commercial species recovery, the project will train local fishers in survey techniques in collaboration with Reef Check California, an international NGO with ample experience in community-based surveys for reef health assessment. To answer the question of whether reserves are creating a spillover effect and are strengthening neighboring areas resilience or not, COBI will seek a partnership with



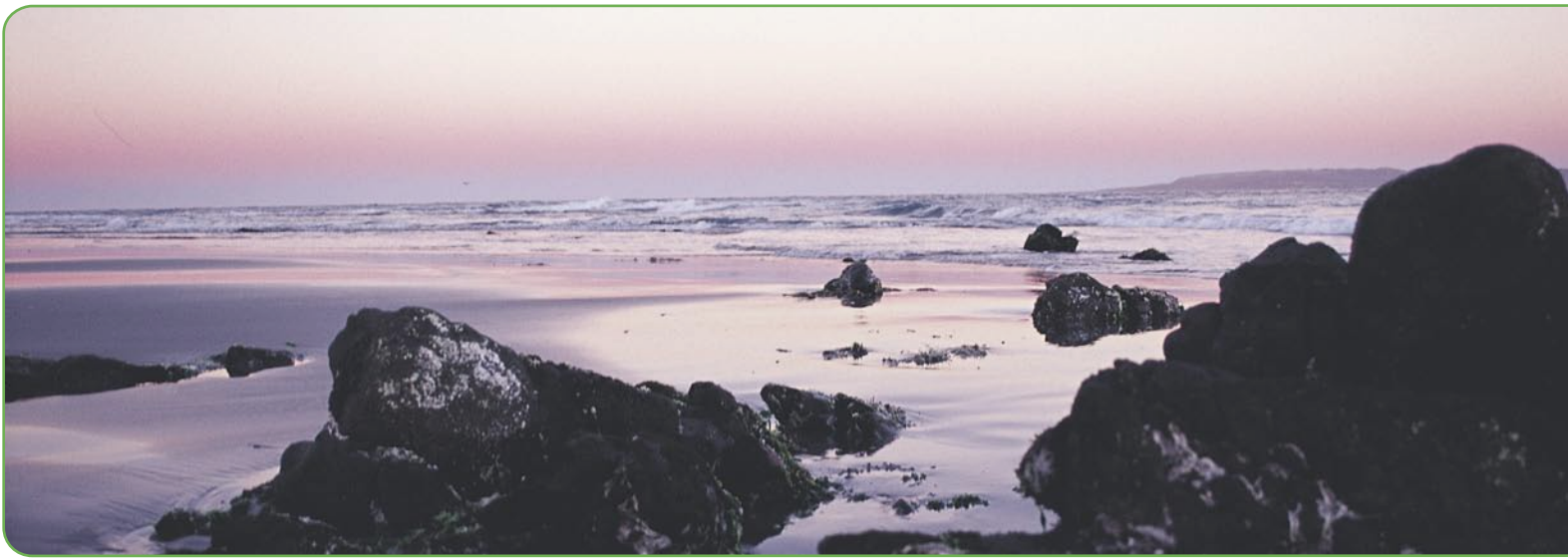
experienced research institutions in California and Baja California. One of the collaboration agreements for this research is being explored with the Partnership of Interdisciplinary Coastal Oceans (PISCO) ^[7], a group with strong expertise on marine ecology and oceanography working along the California Current ecosystems of the West Coast of the USA.

If the strategy is successful and the cooperative is convinced, the full protection of a suitable ground will be proposed to the assembly, and from there to the appropriate authorities for full implementation. **We expect that if convinced by the scientific evidence, fishers will be willing to support marine reserves as an appropriate fisheries management strategy and marine conservation not just at Isla Natividad but for the entire Mexican kelp forest.**



To read more...

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Comunidad y Biodiversidad, A.C. was established in response to the need of facing threats to coastal and marine biodiversity and socio-cultural vitality. Our mission is to encourage marine conservation through participatory approaches. We search for community partners with whom to create sustainable development models that can be used as example for other communities.



Cooperativa Buzos y Pescadores has more than 80 members and is one of the oldest fishing cooperatives in the western Baja California coast. The cooperative controls extraction, processing, and marketing of all benthonic fisheries inside its authorized exclusive fishing concession around Natividad Island.

It has an exemplary fishing resources management and determines more precautionary policies during meetings than those requested by the fishing authority. Most public service utilities like water, electricity, health, and education for the island inhabitants are provided thanks to a strong financial support from the cooperative. The cooperative started in 2003 a pilot project to establish and assess marine reserves to recover abalone species and ecosystem functions.

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