



Scuba diving and fishing in the Cocos Marine Conservation Area and their contribution to the Costa Rican economy





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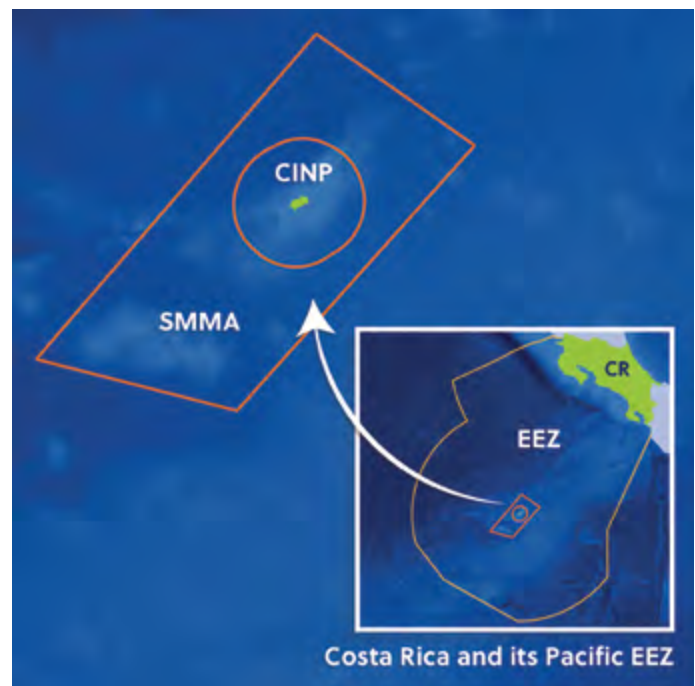
Ecosystems in the Cocos Marine Conservation Area

Located in the Eastern Tropical Pacific, the Cocos Marine Conservation Area (CMCA) is recognized worldwide for its biodiversity, endemism and scenic beauty.

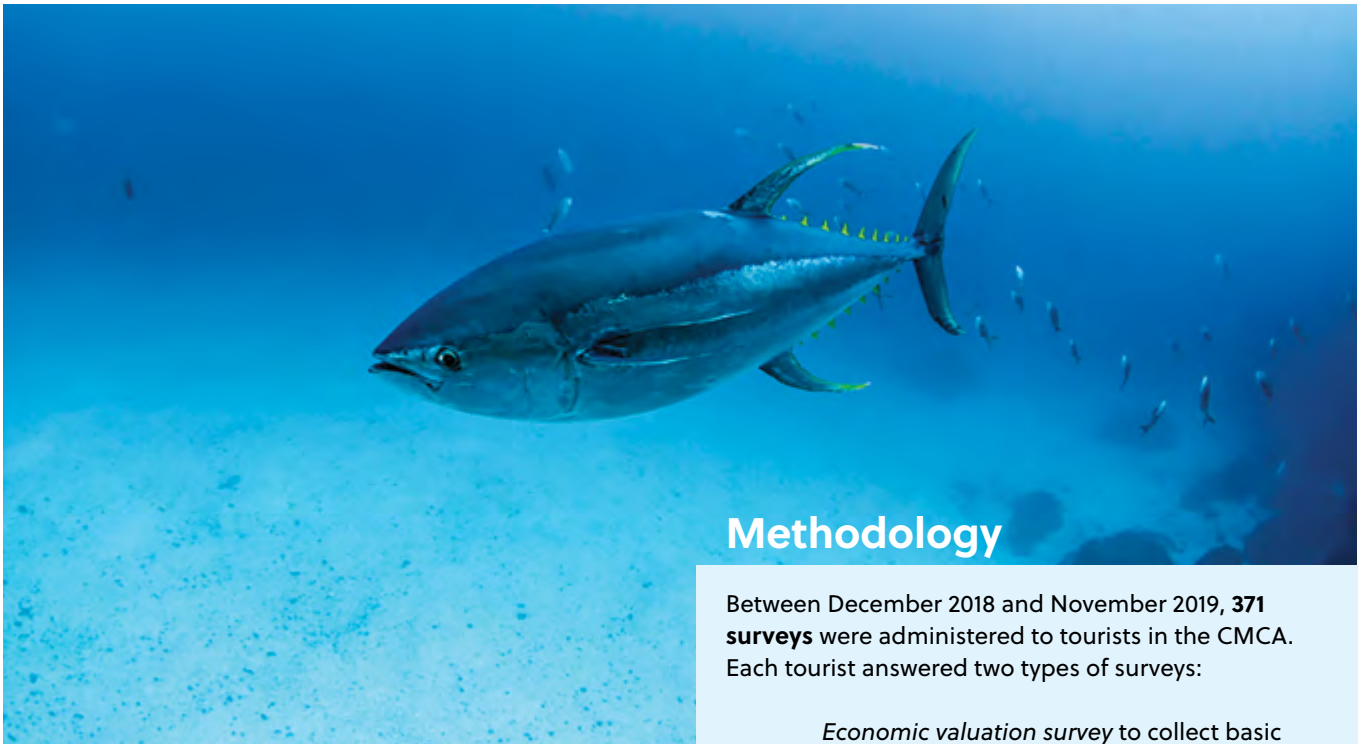
The CMCA includes two marine protected areas: the Cocos Island National Park (CINP) and the Seamounts Marine Management Area (SMMA).

The CINP protects some of the most extensive and species-rich reefs in the Eastern Tropical Pacific, as well as important aggregation spots for marine fauna. Thanks to these attributes, the CINP is considered one of the top ten recreational scuba diving sites in the world.

The SMMA also protects important fisheries, transit zones for migratory species, and species that may still be undiscovered by science.



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Threats

Despite their ecological, touristic and commercial importance, the marine species hosted by the CINP, the SMMA and their adjacent waters are exposed to intense fishing pressure.

In order to mitigate the negative effects of this threat and allow the affected species populations to recover, options to regulate the use and management of the waters surrounding the CINP and the SMMA are currently under analysis.

Analysis of the socioeconomic benefits of improved marine protection

The Friends of Cocos Island Foundation (FAICO) recently commissioned two socioeconomic analyses about the benefits of an improved CMCA protection. Between 2018 and 2020, the following studies were conducted:

- Assessment of the direct and indirect socioeconomic benefits of the CMCA for the fisheries, tourism and other sectors (SINAC, 2020).
- Quantitative assessment of the willingness to pay for the current level of protection and for possible improvements in the protection of the CMCA and its adjacent waters (SINAC, 2020).

Methodology

Between December 2018 and November 2019, **371 surveys** were administered to tourists in the CMCA. Each tourist answered two types of surveys:

Economic valuation survey to collect basic information about the users of the CINP's natural resources. The questions focused on the motivations and frequency of visits to the CINP, the type of activities carried out, and the costs incurred during the trip.

Contingent valuation survey. This instrument captured the "stated preferences" of respondents. The objective of the survey was to collect data on the willingness to pay for improvements in ecosystem and species protection in the CMCA and its adjacent waters, as well as investigating the effect of natural resource quality on tourists' willingness to return.

In addition, to gather information specific to fishing activities, **31 surveys** on sport fishing were conducted among charters, restaurants, hotels, marinas and service suppliers, and **41 surveys** on longline fishing were applied among longliners, service suppliers and exporting companies.

In the case of the CINP, the researchers held complementary **interviews** with organizations, hotels, tour operators, and transportation managers.

The data collected through surveys were statistically processed. A *clusters* approach was used in order to determine the income generated by tourism and fishing in different groups of benefitting activities, such as research, tour operators, lodges, restaurants, etc.



US\$ 19,7 million/ annually
(Tourism in CINP)

US\$ 21 million/ annually
(Sport fishing in the SMMA)

US\$ 10 million/ annually
(Longline fishing in SMMA)

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Results

Socioeconomic benefits of the CMCA

- The CINP annually generates nearly US\$19.7 million in income from tourism and other clusters of activities. Of this amount, approximately US\$17.2 million (88%) contribute to the income of the Costa Rican national economy and nearly US\$684,200 (almost 4%) are linked to the direct employment of public officials at the national level.
- Sport and recreational fishing in the SMMA generates more than US\$21 million annually. Additionally, longline fishing contributes an annual amount exceeding US\$13.7 million. About 99% of the benefits provided by both types of fishing contribute locally (Puntarenas).
- The sport fishing and touristic charter activities provide about 90 direct jobs. The marinas have the capacity

to generate up to 700 direct jobs. Longline fishing generates at least 200 direct jobs, considering the vessels alone.

Tourism in the CMCA

- The majority of tourists visiting the CMCA are Europeans (52%), North Americans (19%) and Asians (17%) with high levels of education (i.e. college and advanced degrees) and income (56% have annual household incomes above US\$100,000).
- The average expenditure per visit to the CMCA for scuba diving, snorkeling, and hiking is estimated at approximately US\$6,800 per tourist. The average expenditure by sport fishers is approximately US\$11,500 per visit.

Economic importance of sharks

99% of tourists visiting the CMCA and its adjacent waters do so for scuba diving, with the main motivation of observing sharks (77%).

Considering park visitor expenditure, **live sharks** generate an annual income of around US\$14 million.

Dead sharks, on the other hand, represent approximately US\$0.3 million in annual income based on estimates of longline fished amounts (inside and outside the SMMA) and the meat price per kilogram.

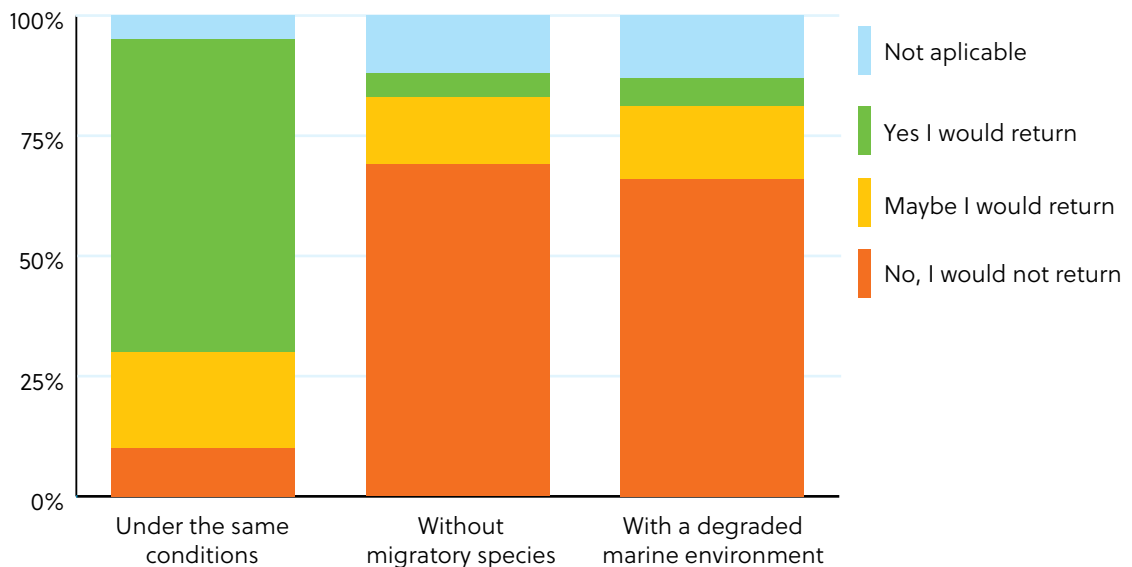


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Importance of marine protection for tourism

- 65% of the respondents would return to the CMCA with the aim to scuba dive. However, only 5% would return if the marine environment were significantly degraded or if sightings of marine migratory species, such as sharks, decreased.
- 55% of respondents would be willing to pay an additional environmental fee to support an enhanced protection of the CMCA and its marine species.
- The willingness to pay for enhanced environmental protection on top of current travel expenses is in the ranges:
 - between US\$36 and US\$50 (approximately 30% of those willing to pay); and
 - more than US\$50 (about 45% of those willing to pay) per person.

Willingness of visitors to return to the CMCA and its adjacent waters





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Conclusions

- The different activities carried out in the CMCA underpin a value chain with economic benefits at the local, regional, national, and international levels of approximately US\$54 million per year.
- Maintaining healthy shark populations is crucial in economic terms. It is estimated that tourism associated with the observation of live sharks generates an annual income 45 times higher than the income generated by the sale of their meat (i.e. dead sharks).
- The possible decline of shark populations could jeopardize up to 95% of the income derived from tourism, given that shark sightings represent the main tourist attraction of the CMCA.
- Most visitors stated that they would not return to the area if the marine environment and populations of migratory species, such as sharks, were to deteriorate.
- Strengthening the protection of the marine environment of the CMCA and its adjacent waters is a matter of broad economic interest that benefits both public and private actors. For example, actors such as: tour operators, marinas, owners of commercial establishments that offer goods and services to tourists, and finally, the Costa Rican government, which receives income through taxes derived from these activities.
- Establishing financing mechanisms based on tourists' willingness to pay could raise between US\$83,000 (conservative estimate) and US\$230,000 (optimistic estimate) per year in additional funds to support the management and conservation of protected areas.
- Protecting the CMCA's ecosystems would also help maintain the populations of many relevant species for the fishing sector.

Recommendations

- To secure the flow of scuba diving and sport fishing tourists in the CMCA, and the sustainability of longline fishing in its adjacent waters (with all the associated economic benefits), it is necessary to mitigate pressures inside and outside the marine protected areas.
- The results of these studies support possible increases in the fees tourists pay when visiting the CMCA. Such changes could be accompanied by gradual fee increase strategies, as well as information and awareness campaigns targeting tourists.
- The protection of the CMCA and its adjacent waters depends on the collaboration between the public and private sectors (tourism and other associated services). This collaboration is essential to ensure the sustainable provision of ecosystem services of these marine areas and their broader economic contributions.



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SINAC (Sistema Nacional de Áreas de Conservación). 2020. Valoración Económica de Servicios Ecosistémicos en el Área de Conservación Marina Cocos (ACMC) y Aguas Adyacentes. Área de Conservación Marina Cocos. San José, Costa Rica. 275 p.

SINAC (Sistema Nacional de Áreas de Conservación). 2020. Estimación de la disposición a pagar de visitantes al ACMC y sus aguas adyacentes, de manera adicional al gasto actual, por una posible ampliación de la protección de sus ecosistemas y especies. Área de Conservación Marina Cocos. San José, Costa Rica. 41 p.