



**Addressing manta rays' bycatch
in Peruvian waters:
a majestic and threatened giant of the ocean.**

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Report 2

To join forces and address the problem of incidental capture of manta rays, Planeta Ocean has been developing a series of efforts for more than a decade involving the participation of different actors. In 2019, a workshop titled 'Strengthening Capacities in the Conservation of Elasmobranchs with emphasis on sharks and manta rays in the Tumbes region' was held, generating resources focused on three main axes: prevention of bycatch, safe release of individuals, and effective communication with fishermen.



One of the strategies proposed in the 2019 workshop was the creation of the Earthranger application, a notable achievement. Earthranger has been implemented as a pilot project for almost two years. Planeta Ocean provided fishermen with mobile devices containing the application and trained them on its use. This tool enables fishermen to report data on their fishing activity, hauls, wildlife sightings, bycatch, and boat sightings. This data collection contributes to generating information on the spatial movements of manta rays and other species associated with their bycatch. The Planeta Ocean team holds regular meetings with the fishermen to monitor progress and identify opportunities for improvement.



In the educational field, the NGO has developed visual materials and planned and implemented marine education workshops and activities in some schools and colleges in Peru. They have trained instructors, known as marine educators, to conduct these activities. As part of this initiative, the creation of murals in various parts of the Zorritos community in Tumbes stands out.



In 2021, a study was published in collaboration with Planeta Ocean, suggesting that manta rays spend much of their time on the surface, making them more susceptible and vulnerable to interaction with fishing vessels (Andrzejczek et al., 2021).



On the other hand, Planeta Ocean has implemented socio-economic surveys of fishermen to understand their perspective regarding the problem of bycatch and obtain recommendations to address it. A total of 120 fishermen from various communities were surveyed. The results confirm once again that bycatch has a negative impact on the development of fishing activities by generating economic losses for fishermen who lose part of their nets when a species is trapped. Likewise, the results suggest that around 20% of the fishermen surveyed are willing to analyze a proposal to modify fishing gear or equipment. Additionally, within the recommendations, they suggest the delivery of incentives or other forms of support as a form of recognition of their collaboration.

As part of the strategies to gather more information and feedback regarding strategies that could be useful to address bycatch, meetings were held with institutions such as the Regional Production Directorate (DIREPRO) and the Peruvian Sea Institute (IMARPE). The strategies proposed for the preparation of a Policy Brief were presented to the experts, and the opportunities for improvements identified were incorporated. As an additional component, the Larco and Huaca Pucllana museums were visited to explore more closely the relationship of ancient Peruvian communities with manta rays and the marine world in general. The representations available in museums suggest a worldview based on the concept of duality, attributing to this the basis of balance in the world. For these communities, there was an upper terrestrial world and a lower underwater world, both equally relevant and necessary. The manta ray and other marine species are represented in the ceramics of the Mochica culture, a pre-Inca culture in northern Peru. Alla Paec, an important character in the worldview of this culture, faces several marine species, including the manta ray, whom she needs to defeat to obtain her ability to move stealthily without being discovered. All this to ascend to other worlds.

References

Andrzejczek, S., Schallert, R. J., Forsberg, K., Arnoldi, N. S., Cabanillas-Torpoco, M., Purizaca, W., & Block, B. A. (2021). Reverse diel vertical movements of oceanic manta rays off the northern coast of Peru and implications for conservation. *Ecological Solutions and Evidence*, 2(1), e12051.

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