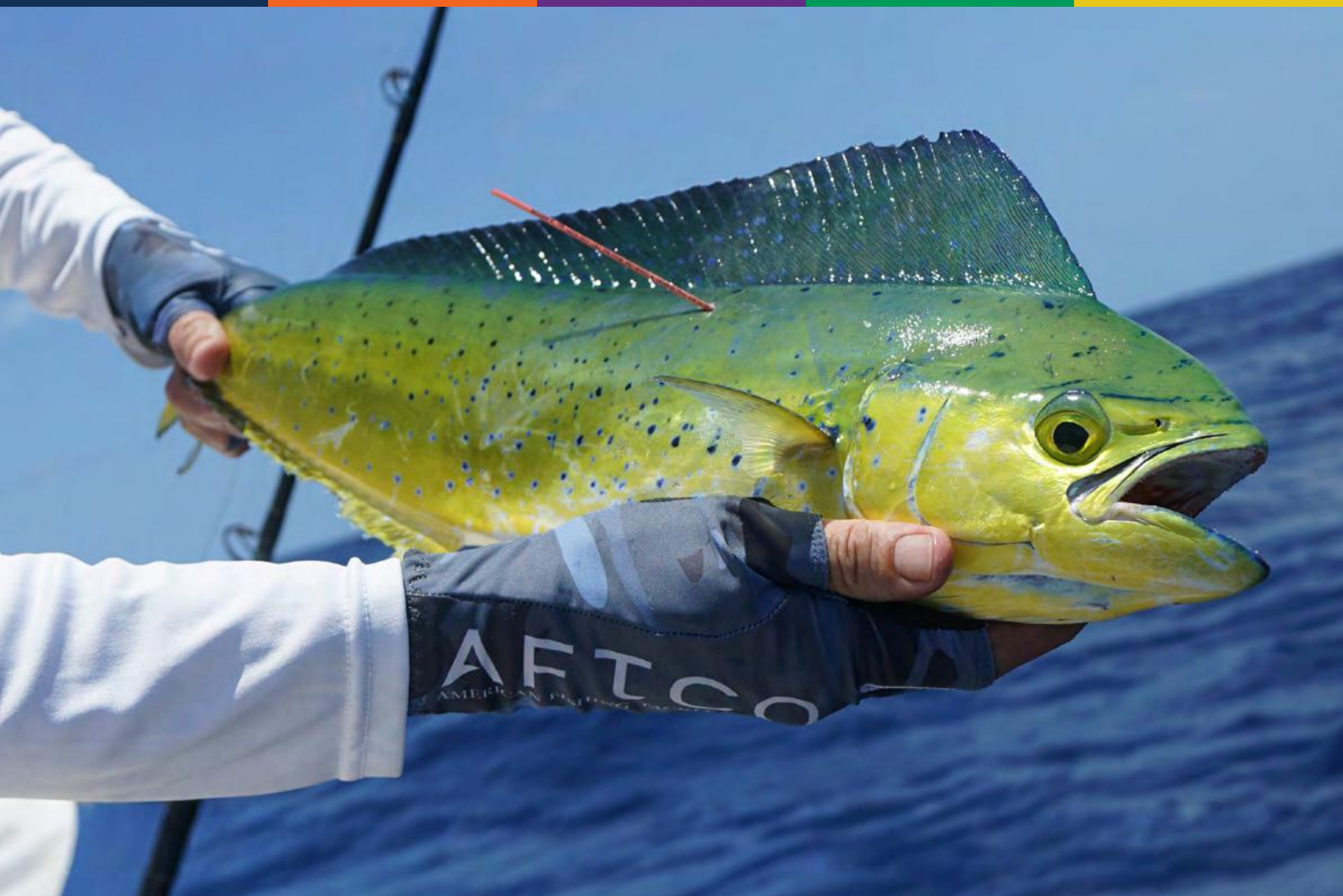
Sustainable Fisheries
PARTNERSHIP

Science for Sustainable Fisheries: Mahi-Mahi Tagging in the Eastern Pacific Ocean

December 2025



Mahi-mahi *(Coryphaena hippurus)*, also known as dolphinfish or dorado, is a fast-growing, early-maturing, highly migratory pelagic species. In the coastal countries of the eastern Pacific Ocean (EPO), this resource has high social and economic value, as it supports commercial fisheries, primarily small-scale artisanal and semi-industrial operations.

In 2016, the Inter-American Tropical Tuna Commission (IATTC), based on a stock assessment, noted the need for better information on the stock structure of mahi-mahi in the EPO. Fishery management authorities then recognized the importance of investing in research, including tagging studies, to reduce uncertainty and align management with the biological status of the resource.

Fish tagging allows us to understand their movements, migration routes, dwelling areas, and species growth rates. Although tag recovery is often low (around 2% in international studies), it remains a valuable and widely used tool by scientists globally, as it generates unique evidence to guide management measures such as fishing seasons, fishing areas, or minimum landing sizes.

Since 2021, Sustainable Fisheries Partnership (SFP) has been supporting the fisheries research institutes of Ecuador (IPIAP) and Peru (IMARPE) in the implementation of a dolphinfish tagging study. This experience has generated useful data for decision-making and has encouraged the participation of the artisanal fishing sector in data collection, thereby strengthening the co-management of the resource.

How the Tagging Project Was Carried Out

Launch of the Tagging Project

2021

Ecuador and Peru presented a regional scientific plan for dolphinfish to the Scientific Advisory Committee (SAC) of the IATTC, developed with the support of the Comité Regional de Productores y Procesadores de Mahi (COREMAHI). The plan prioritized the following: genomic study, tagging, and stock assessment, led by IPIAP and IMARPE.

SFP secured support from international cooperation and the Global Mahi Mahi Supply Chain Roundtable (SR) to initiate the mahi-mahi tagging project, aimed at generating information on movements and growth that would directly serve the fisheries management.

Pilot Phase and Initial Experience

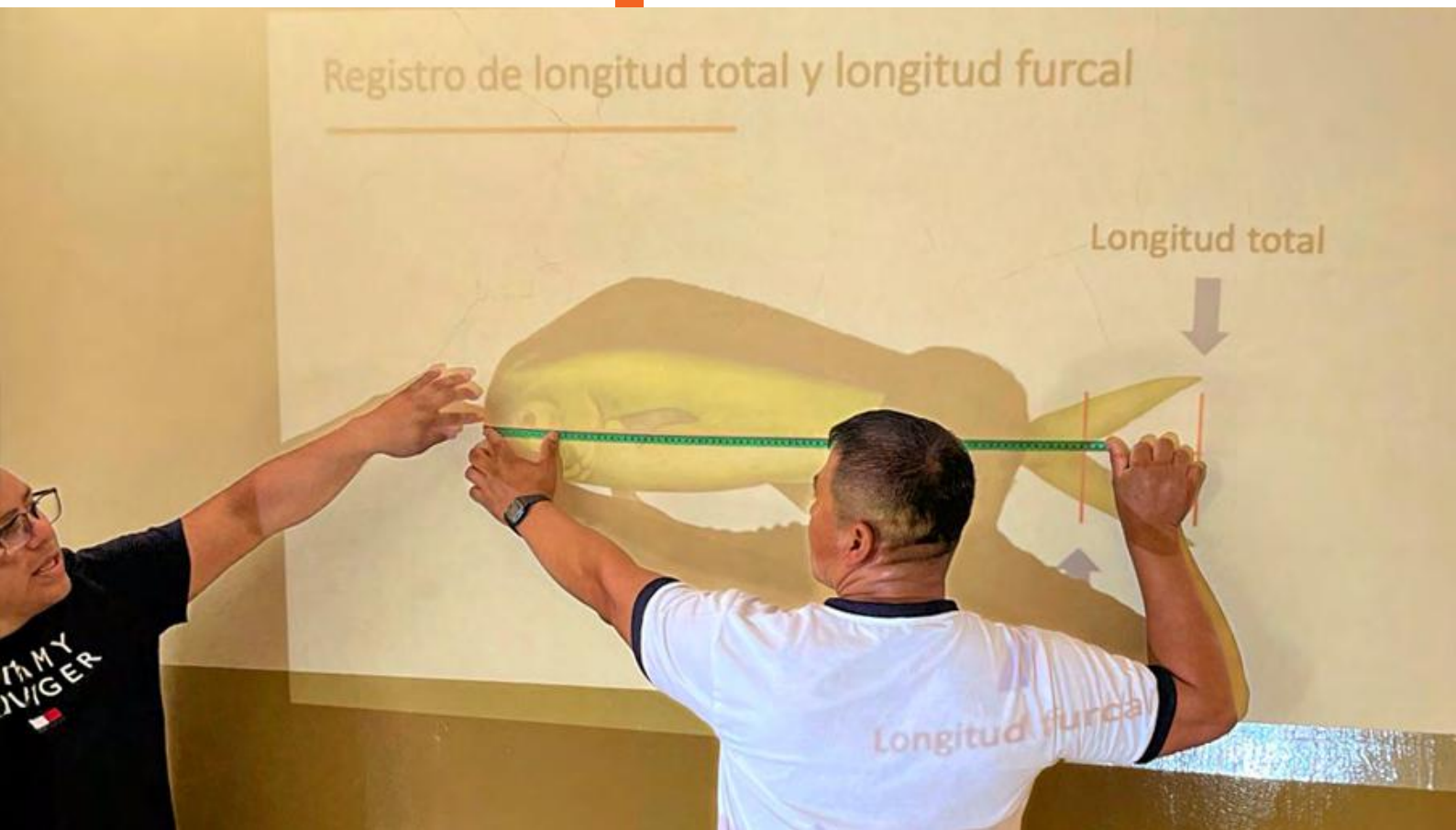
2022

The pilot phase of tagging began under the Technical Cooperation Agreement between IPIAP and IMARPE, with the support of SFP, COREMAHI, and supply chain stakeholders. The goal of this pilot phase was to test logistics, provide training, supply equipment and materials, and validate the feasibility of tagging for its future adoption by artisanal fleets.

The first tagging campaign was conducted in Ecuador aboard a sport fishing vessel, led by scientist Wessley Merten, Director of the Dolphinfish Research Program. This experience allowed for the standardization of procedures, the evaluation of return survival rates, and the adjustment of tagging materials and protocols.

Results:

- **Trained Fishers:** 20 fishers from mother vessels were trained in the safe deployment of tags.
- **Trained Scientific Staff:** Two researchers, one from IPIAP and one from IMARPE, received training in the deployment of satellite and conventional tags.
- **Fish Tagged:** 73 in total.
  - » 2 individuals, with satellite tags (long-distance tracking).
  - » 71 individuals with conventional tags (recapture and reporting).



2023-2024

With the project underway, SFP integrated fishers from the longliner fleet of the Asociación de Producción Pesquera de Armadores de Manta (ASOAMAN) in Ecuador, through the Alianza Por la Pesca project (formerly “Por la Pesca”). The goal was to bring tagging into the real operation of the artisanal/small-scale fleet, with training, materials, and technical support.

Scaling Up and Initial Management Insights

Results, Analysis, and Management Implications:

- **Field Training:** 25 observers from the Undersecretariat of Fishery Resources (Ecuador) and 20 from IMARPE (Peru); in addition, 64 Ecuadorian fishers were trained in six workshops conducted by IPIAP specialists.
- **Tagging:** 114 fish tagged; 6 tags recovered with complete information published on the IPIAP website.

Key Findings from IPIAP Recapture Analysis:

- Recovery rate higher than that reported in the literature, suggesting good involvement from fleets and observers.
- Three recaptures came from purse-seine tuna sets on FADs (Fish Aggregating Devices), showing interaction between the tuna purse-seine fleet and the artisanal and small-scale semi-industrial dolphinfish population and fishery.
- Individuals tagged near Galápagos were recaptured further north and in oceanic waters, indicating long-range movements towards the high seas and northern latitudes.
- Confirmation of a rapid growth rate for the species, with one specimen increasing from 42 cm to 108 cm in total length in 76 days (≈ 0.47 cm/day).

Management Implications:

- **These results support:** (i) the adoption of adaptive measures by area and season, according to the observed movement and abundance patterns; (ii) the use of tagging to validate growth parameters and migration routes in future stock assessments; and (iii) the strengthening of compliance with mahi-mahi measures by the tuna fleet, along with coordination mechanisms to report recaptures in a timely and traceable manner.

New Tagging Cycle to Consolidate Evidence

2025

New kits with 60 tags were delivered to captains of 12 vessels belonging to the Asociación de Patrones y Timoneles de Pesca de Manta (ASOPTMANTA), with the objective of starting a new tagging cycle. This phase seeks to expand the database and confirm the initial findings on mahi-mahi movement patterns, strengthening the information for management decision-making by area and season.

The future

The mahi-mahi tagging is a shared need for all stakeholders in the supply chain.

The tagging experience promoted by the fisheries research institutes of Ecuador and Peru, with the support of SFP and COREMAHI, has particularly strengthened the producer role in the supply chain.

After five years of work, there is growing interest from authorities in involving vessel owners, captains, and artisanal fishers in generating knowledge about a resource which represents their livelihood and requires sustainable management.

SFP recognizes and values the increasingly broad participation of the productive sector in these initiatives. **Every tagged mahi-mahi is a fish returned to the sea: a lost earning for the fisher at that moment, in favor of the sustainability of the fishery and the health of the marine ecosystem.** This commitment translates into better management decisions and a safer future for the communities that depend on the dorado in the EPO.

Sustainable Fisheries
PARTNERSHIP

If you'd like to learn more about SFP's work with the Mahi-mahi Fishery in Latin America, please email teddy.escarabay@sustainablefish.org.