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Launching ACTIVE: strengthening collaborative efforts for sea turtle bycatch mitigation and conservation in the SWIO

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ABSTRACT

The ACTIVE project (*Atténuation des Captures accidentelles de Tortues marines et Initiatives de Valorisation d'une pêche Écoresponsable*) was selected in June 2025 for funding under the European Maritime, Fisheries and Aquaculture Fund (FEAMPA, OS 1.6). Building on more than 20 years of partnership with fishermen and on the SaveTurtleRUN project (2023–2025), ACTIVE will start in July 2025 for three years. Its main objective is to reduce the impact of French longline fisheries operating in the Southwest Indian Ocean (SWIO) on sea turtle bycatch, while promoting sustainable fishing practices and advancing scientific knowledge on these threatened species.

The project is structured around four objectives: (i) strengthening cooperation with professional fishers and building their capacities; (ii) mitigating the impacts of bycatch through improved handling at sea and rehabilitation practices in Kelonia care centre; (iii) enhancing scientific knowledge on the ecology of incidentally caught turtles and fishery impacts, using genetics, satellite telemetry and modelling; (iv) communicating and disseminating results while reinforcing collaboration between stakeholders at local, regional, and international levels. ACTIVE will involve all 43 Réunion-based longline vessels and engage fishers as active partners in conservation.

Expected outcomes include wider adoption of best practices, improved survival of incidentally captured turtles, robust bycatch datasets with dedicated monitoring of post-release survival, and greater visibility of conservation initiatives led by Réunion fisheries. The project contributes to national and regional strategies (PNA TM OI, French Biodiversity Strategy 2030, Marine Strategy Framework Directive), supports the Marine Stewardship Council (MSC) certification requirements, and advances the Sustainable Development Goals (SDGs 12, 13, and 14). It also aligns with Indian Ocean Tuna Commission (IOTC) priorities by reducing bycatch, improving data collection, and supporting evidence-based management for sustainable fisheries.

ACTIVE PROJECT – BACKGROUND

Incidental capture of sea turtles in longline fisheries represents a major conservation concern worldwide (Wallace et al., 2010; Swimmer et al., 2020). In the Southwest Indian Ocean (SWIO), interactions with French longliners based in Réunion Island particularly affect loggerhead turtles (*Caretta caretta*), but also leatherback (*Dermochelys coriacea*), green (*Chelonia mydas*), and olive ridley (*Lepidochelys olivacea*). Although longline fishing is relatively selective, hook-induced injuries and post-release mortality remain significant threats for these species (Gilman et al., 2006; Parga, 2012).

Since 2004, several initiatives have been developed in collaboration with fishers from Réunion to reduce sea turtle bycatch and improve handling practices. The partnership with Kelonia Sea Turtle Care Centre, strengthened under the COCA-LOCA project (2014–2017), introduced training on safe handling and de-hooking kits. More recently, the SaveTurtleRUN project (2023–2025) reinforced fisher engagement, with 86 turtle interactions reported and documented since mid-2023. Kelonia has also treated more than 400 incidentally captured turtles since 2004, providing critical rehabilitation and survival data.

These efforts, recognised through the Marine Stewardship Council (MSC) certification of the Réunion swordfish fishery in 2022, demonstrate the long-term commitment of local fishers to responsible practices. However, key knowledge gaps remain regarding the survival of turtles

released directly at sea, the genetic origin of affected populations, and the effectiveness of mitigation techniques under different fishing conditions.

The ACTIVE project was designed to address these gaps by consolidating fisher–scientist collaboration, applying innovative tools (satellite telemetry, genetics, modelling), and ensuring the integration of best practices at fleet scale.

PROJECT OBJECTIVES AND EXPECTED RESULTS

The project is structured around four complementary objectives, each addressing a specific dimension of bycatch reduction and knowledge improvement.

O1 – Strengthening cooperation with professional fishers and building their capacities

This objective focuses on reinforcing long-term collaboration with Réunion-based longline crews through targeted training and provision of equipment. Two training sessions will be organized each year for all 43 vessels, covering safe release methods, use of de-hooking kits, welfare principles, and reporting protocols. De-hooking kits will be distributed across the fleet and their effective use monitored. Data sheets and photo-based reporting will be standardized to document each interaction. Volunteer captains and observers will also be trained in tagging and biological sampling. Expected results include adoption of improved practices, higher quality data collection, and an increase in successful live release of turtles directly from vessels.

O2 – Mitigating the impacts of bycatch on sea turtles

The aim here is to minimize the impacts of incidental capture by improving onboard handling and enhancing rehabilitation capacities in Kelonia’s care centre. International veterinary expertise will be mobilized to update treatment protocols and train local staff. Handling guidelines will be integrated into fisher training, ensuring consistency at sea. In parallel, studies on hook selectivity and predictive modelling of high-risk areas will be conducted to guide future mitigation strategies. The expected results are updated and standardized care protocols, an improvement in survival of rehabilitated animals, and new insights into the influence of hook types on turtle injuries.

O3 – Enhancing scientific knowledge on turtle ecology and fishery impacts

This objective addresses critical knowledge gaps through the integration of advanced technologies and collaborative data collection. Genetic analyses will build on more than 200 samples collected between 2015 and 2024 (project COCA-LOCA) and will be complemented with 200 additional samples. The new analyses will allow the origin of incidentally captured populations to be assessed over time by comparing new samples with previous datasets, thereby identifying possible temporal shifts in stock contribution. For the first time, leatherbacks (*Dermochelys coriacea*) will also be included in the genetic dataset, providing novel insights into the populations affected in the SWIO. Satellite telemetry (20 deployments) will monitor post-release survival and behaviour of turtles released directly at sea compared with those rehabilitated in care centres. Veterinary analyses (blood, necropsies, diet, plastic ingestion) will strengthen health assessments and document threats. Data collected by fishers and observers will be standardized and integrated into regional bycatch databases. Expected outcomes include robust estimates of post-release survival, refined knowledge of reproductive stocks affected, 100 standardized fisher reports per year with photographic evidence, and evidence-based recommendations on hook selectivity, bait type, fishing depth and effort.

O4 – Communication and dissemination of results

This objective ensures the project’s outputs are widely disseminated to stakeholders and decision-makers, while enhancing the visibility of Réunion’s fishery-led conservation efforts.

A kick-off meeting and a two-day restitution seminar will be organized, and partners will present results at regional and international meetings (WIOMSA, ISTS, IOTC WPEB, GTMF). Scientific and outreach products will be produced, including technical reports, peer-reviewed publications, posters, videos, and educational tools. Exchanges with international experts will reinforce best practices and provide innovative solutions for bycatch reduction. Expected results include strengthened collaborations across the SWIO, at least one peer-reviewed article and two technical reports, improved public perception of fishers, and greater recognition of Réunion's contribution to sustainable tuna fisheries.

CONCLUSION

The ACTIVE project consolidates over two decades of collaboration between Réunion fishers, scientists, and managers to address the persistent challenge of sea turtle bycatch in the SWIO. By combining capacity building, improved handling and rehabilitation practices, innovative scientific approaches, and broad dissemination of results, the project aims to significantly reduce the mortality of incidentally captured turtles and strengthen the sustainability of longline fisheries.

ACTIVE is based on a collaborative approach that brings together scientific institutions with complementary expertise, representatives of the fishing profession, and the entire Réunion longline fleet. All 43 vessels, from coastal longliners (8–12 m) to offshore vessels (13–24 m), will be directly involved in the project's implementation. By integrating innovative technologies and highlighting the central role of fishers in the preservation of marine ecosystems, the project reinforces the incorporation of sustainability objectives into the fishery, ensuring that biodiversity conservation is aligned with the responsible use of marine resources. The integration of genetic analyses, satellite telemetry, and survival monitoring will provide new insights into the impacts of fisheries on turtle populations and inform evidence-based management.

Ultimately, ACTIVE demonstrates the value of long-term fisher–scientist partnerships in developing practical, scalable solutions that align biodiversity conservation with responsible fishing, contributing to the achievement of sustainable development goals in the SWIO region.