



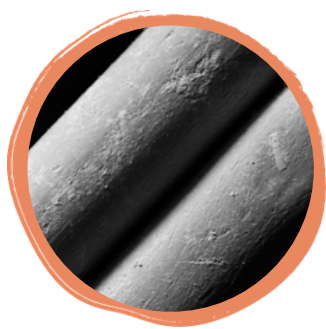
Experimental sea trials assessing the performance of recycled polyamide (rPA) and conventional dolly ropes



SEARCULAR has reconditioned end-of-life purse seine nets and provided them a new life by converting them into longer-lasting dolly ropes. These new ropes target the reduction of marine litter and microplastic released at sea from traditional dolly ropes and simultaneously reduce the number of discarded nets in ports. SEARCULAR's manufactured ropes were tested at sea under different conditions to assess how they perform in comparison to existing gear counterparts.

Background

Dolly ropes are bundles of 1.5-2m long synthetic polypropylene or polyethylene strands, used as a protective buffer between fishing nets and the bottom of the ocean. These plastic ropes fray easily, as they are dragged along the seabed. Therefore, **SEARCULAR has transformed end-of-life (EOL) tropical tuna fishing nets into dolly ropes made of recycled polyamide (rPA)**. These are designed to have enhanced abrasion resistance and durability (for development and production see [deliverable 1.1](#)).



LEFT: Microscopic images of rPA ropes after sea trials, which show reduced abrasion.

RIGHT: Preparing a chafing mat with rPA ropes (black) and conventional (orange) dolly ropes

SEARCULAR aims to reduce marine litter and microplastic pollution originating from European fisheries. This report presents the work and outcomes of Work Package 1 (Deliverable D1.2). More information about our work on recycled PA dolly ropes can be found [on our website](#).

Our Research

Comparative sea trials were conducted onboard four vessels operating in different fisheries and environmental conditions. In total, these vessels performed 429 trawl hauls across the Bay of Biscay, the Cantabrian Sea, and the North Sea, allowing the traditional and innovative rPA dolly ropes to be evaluated under both experimental and commercial fishing conditions.

The results of the trials indicate that SEARCULAR's rPA ropes:

- Retained their structural integrity
- Had a lower filament loss (1.2%) than traditional ropes (8.3%)
- Showed promising resistance to operational degradation

These results were further supported by laboratory testing, where **abrasion testing confirmed that the recycled ropes had a superior abrasion resistance**, and microscopic imaging revealed no signs of cracking or material disintegration.

Next Steps

This research indicates that SEARCULAR's rPA dolly ropes have a greater resistance to operational wear and suggest that the recycled polyamide formulation has significant potential as a durable dolly-rope material. However, further adjustments are needed to improve the flexibility and handling of the ropes before large-scale commercial implementation.