

## Producing recycled Polyamide Dolly Ropes



Traditional dolly ropes used on trawlers fray easily, have a reasonably limited lifespan, and are often lost at sea. At the same time, thousands of tonnes of fishing nets are discarded every year, having reached the end of their life. SEARCULAR is reconditioning end-of-life purse seine nets to manufacture longer-lasting dolly rope, reducing both fisheries related marine litter at sea and the number of discarded nets in ports.

### Background

The tropical purse seine fleet is the largest segment of the global tuna fishing industry, with roughly 2,100 vessels operating worldwide. Nets used by these vessels are replaced every 2-3 years, generating over 1,000 tonnes of waste at ports every year.

Dolly ropes are essential protective gear used in bottom trawling, a widely used fishing method in European waters. Dolly ropes are bundles of 1.5-2m long synthetic polypropylene or polyethylene strands, which fray easily as they are dragged along the seabed. As a result, these ropes produce large quantities of micro- and macroplastic marine litter and require frequent replacement.

SEARCULAR addresses both of these issues. By transforming discarded polyamide nets into dolly ropes that have enhanced abrasion resistance, we are reducing plastic marine litter and improving the durability of ropes.



**LEFT:** Cut segments of the PA tuna purse seine net.  
**RIGHT:** Monofilament spools produced from recycled polyamide.  
Images courtesy of Saretu

### Our Research

4 tonnes of discarded tuna purse seine nets were collected at port and dismantled. Following the removal of additional materials such as chains, bolts and floats, 2,800kg of usable polyamide (PA) netting was extracted. This PA net was cleaned, shredded, and processed into recycled PA (rPA) pellets.

The rPA pellets were tested under laboratory conditions with different additives, to select an optimum compound that best met the requirements for dolly rope. The selected rPA pellet was then advanced to industrial-scale transformation, where it was converted into a monofilament for the production of dolly rope.

This monofilament has undergone laboratory abrasion testing which has shown it to be up to 25 times more abrasion resistant than traditional dolly ropes.

### Next Steps

The dolly ropes have been cut and prepared for use on fishing nets aboard active vessels. The ropes will then undergo sea trials to assess the durability and operational performance of the rPA dolly ropes against conventional 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 D1.1). More information about our work on recycled PA dolly ropes can be found [on our website](#).