OSPAR REGIONAL ACTION PLAN ON MARINE LITTER

ACTION BRIEFING NOTE: ACTION 37

OSPAR's current understanding of the prevalence and impact of dolly rope, and potential options for future work

Regional Action Plan for Marine Litter (RAP ML)

OSPAR's marine litter objective is "to substantially reduce marine litter in the OSPAR Maritime Area to levels where properties and quantities do not cause harm to the marine environment". OSPAR 2014 agreed a Regional Action Plan for Marine Litter for 2014-2021; this will be reviewed at the end of this period until spring 2021 after which OSPAR will work on the development of a new or updated RAP.

The RAP ML (2014-2021) defines the four key areas (themes) of actions to be implemented:

A. Reduction of litter from sea-based sources
B. Reduction from land-based sources
C. Removal of existing litter
D. Education and outreach

The full Regional Action Plan and its outputs can be accessed via https://www.ospar.org/work-areas/eiha/marine-litter/regional-action-plan.

As OSPAR approaches the end of the implementation period for the ML RAP (2014-2021), OSPAR is reflecting on the progress made under the various actions. This Action Briefing Note provides a summary of the work done to date and the progress made in the field of understanding the prevalence and impact of dolly rope, under Action 37 of the ML-RAP (2014-2021).

This Action Briefing Note sets out the issue and its relevance for OSPAR and the North-East Atlantic Ocean, the work that has been completed by OSPAR Contracting Parties towards completing this action, and finally any identified next steps which could be taken forward to the next OSPAR regional action plan on marine litter.

The Action

Action 37 is to investigate the prevalence and impact of dolly rope (synthetic fibre). Engage with competent authorities (such as National Authorities, EU, North East Atlantic Fisheries Commission, etc.) and the fishing industry in order to work together to reduce the waste generated by dolly rope on a (sub) regional basis.

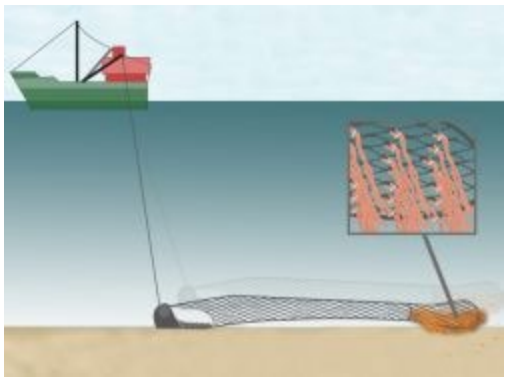
This action is a component of Theme A of the RAP ML to develop best practice in relation to the fishing industry and was co-led by The Netherlands.

Action 37 has two components, the first – to assess the prevalence and impact of dolly rope – has been captured within the OSPAR scoping study on best practices for the design and recycling of fishing gear as a means to reduce quantities of fishing gear found as marine litter in the North-East Atlantic. A summary of what was identified in that report has been used to examine 'The issue', as presented in the following section. The second component of Action 37 - engage with competent authorities and the fishing industry in order to work together to reduce the waste generated by dolly rope – has not yet progressed fully, as the projects established to identify and explore possible solutions have not yet concluded (as discussed in the section on 'What has been done in OSPAR Contracting Parties to address the issue'), and therefore OSPAR is not in a position to embark on an engagement process.

The issue

What is dolly rope and why it is used?

In the European beam trawl fishing industry, high value fishing nets are dragged across the seabed which subjects them to severe abrasive wear. To avoid damaging the nets, dolly ropes are attached to the cod end of the nets and, during the trawl, spread out into tiny filaments to create a protective cushion or buffer between the nets and the seabed.



Dolly rope is made up of approximately 30 polyethylene strings - each string containing around 25 threads and is usually orange or blue. The dolly rope is cut into lengths of 1.5 to 2 metres long and tied into the base of the net. The use of dolly rope is common amongst demersal fisheries around the world but mainly in Europe. Usually more dolly rope is attached to the net in areas of the seabed which are particularly rocky and less is used in areas with a smoother sandy or clay sea floor.

Why dolly rope is an issue for marine litter

Dolly rope as a source of marine litter

Dolly rope presents a unique challenge as marine litter because, as well as having to dispose of it at end of life, it also tears and frays as soon as it starts to be used. This ongoing self-destruction in the course of its normal use results in the loss of very many small strands of plastic into the sea. Generally, 10-25% of freshly attached dolly rope tears off during the first few weeks of use. After this initial period the remaining strands start to tangle into each other; although this reduces the loss of torn off strands, the entangled threads pick up large amounts of sand and grit, generally necessitating immediate replacement with new ones.

Prevalence of dolly rope

DollyropeFree[1] reports that the loss of dolly rope during use results in at least 25,000 kilograms of dolly rope threads in the North Sea alone, worldwide considerably more. This has been calculated based on the amount of dolly rope purchased by Belgian and Dutch fishermen. In addition, a similar amount potentially ends up overboard during operational practices such as repairing damaged nets where it can be intentionally discarded or accidentally lost. Because of this, dolly rope threads are one of the most encountered items found in beach litter surveys in northern Europe. Monitoring surveys[2] in the OSPAR region have shown that 80% of litter found on beaches is made of plastic. According to the SPEKVIS project in Belgium, it was estimated that every year, 90-130 tonnes of dolly rope is purchased by Belgian fishermen. It is estimated that 50% of this quantity ends up in the sea as a result of wear and tear, operational practices such as reparations, and accidental or intentional discards[3].

[1] DollyropeFree (p 115/xxxv OSPAR 2020 Scoping study fishing gear)
[2] http://www.ospar.org/work-areas/eiha/marine-litter
[3] http://www.vliz.be/nl/open-marien-archief?module=ref&refid=286349

Impact of dolly rope on the marine environment

Dolly rope is made of polyethylene, a plastic which although non-biodegradable breaks down into increasingly small fragments to eventually become microplastic particles. The larger pieces present a risk to fish and seabirds who can get tangled up with them, smaller particles can be mistaken for food and ingested. Microplastics are transported by marine currents and easily spread throughout the marine food chains.

What has been done in OSPAR Contracting Parties to address the issue

A number of OSPAR countries (namely The Netherlands, Germany, Belgium and Iceland) currently have projects or initiatives in place to find ways of reducing marine litter from dolly rope. They are based on developing alternative materials, developing alternative net designs and improving litter management on board fishing vessels. The projects established by the Netherlands and Germany were specifically set up to complement each other and progress work under Action 37 of the RAP ML.

Identified solutions and best practice for reducing dolly rope as a source of marine litter

DollyfopeFree (The Netherlands) – alternative materials and net designs

This project has been running since 2014 and is currently in its last phase. The approach has been to develop solutions for the three main reasons why dolly rope ends up in the sea:

a) Alternative materials and net protection methods – many different materials and variations in design have been tested in controlled conditions and at sea. The materials include natural fibres such as sisal (a type of plant) and yak leather (which is, as of 2020, used commercially, albeit on a small scale), biopolymers – both compostable and marine biodegradable and stronger non-degradable polymers that are less prone to wear and tear. A specially designed netting was developed to wrap round the cod-end of a bottom-trawling net.

b) Developing alternative net designs to lift the cod end and prevent it scraping along the sea floor – alternative net designs are being developed in Germany by the Thunen Institut in the DropS project.

c) Improving litter management on board fishing vessels by engaging with vessel crews to raise awareness and other stakeholders to develop practical solutions to enable litter collection in harbours

These latest alternative materials and designs are in the process of being tested by several ships to see how they perform in practice in different seabed conditions and by various types of fishery. Sea trials with biodegradable materials were held during 2020. The results of these trials will be included in the final synthesis report of Dollyropefree, which is expected to be finished and published during Q1 2021.

Green Deal Fisheries for a Clean Sea (The Netherlands) – litter management and recycling

Since 2014, a number of different stakeholders have been collaborating in the 'Green Deal Fisheries for a Clean Sea' in the Netherlands, with the aim of working together for a cleaner sea. In the Green Deal, parties from across the entire chain of the fishing sector are involved & collaborate. Dolly rope is one of the four waste streams addressed and the project has developed a system to collect dolly rope in ports via proper facilities, from where it can be sent to recycling centres. This system has been promoted via flyers and the website www.visserijvooreenschonezee.nl

There was also a temporary project where fishers were granted a small compensation for collecting worn dolly rope, and the grant in turn was donated to a sea rescue society.

DropS – "Dolly Rope Suspension" (Germany) – alternative net design
This project aims to find alternative designs of beam trawl nets that will make abrasion protection by dolly ropes superfluous. DropS has focused on the North Sea beam-trawl fishery that targets brown shrimp. As the intended catch is more or less neutrally buoyant, the two main reasons for the trawl being dragged over the sea floor are:

a) heavy sediment and benthos getting into the trawl
b) the shape of the net and cod-end during towing.

Within the project, four approaches have been considered to minimize the ground contact of the trawl net.

1) Use of passive and active buoyancy at the rear part of the net = e.g. floats and kites
2) Reshaping the actual trawl design – using a special net cutting to produce an ascending trawl or using round straps to avoid ballooning of the cod-end.
3) Reducing the amount of sediment that is swirled up with alternative groundgear designs
4) Reducing the amount of sediment or benthos in the net with release panels or larger mesh sizes in the front sections of the lower panel

Fisheries Iceland return scheme (Iceland) - recycling
In Iceland, there is a voluntary agreement where fishermen can deliver nets and dolly ropes to waste receptions facilities free of charge.

Spekvis (Belgium) – alternative materials
This project was to find sustainable alternatives for plastic dolly ropes. The project concluded that a suitable alternative material was not yet on the market at the time of the project. It also concluded that a customized solution for dolly rope is possible, but only if there is a close collaboration between the fishing industry and the plastics industry as well as well-supported research to find the perfect material.

Barriers to progress

As identified in the projects outlined in the previous section, although the issue of dolly rope is well recognized, there is not yet a commonly accepted viable alternative material that could be used universally. However, when the projects outlined above are concluded, recommendations can be made on possible solutions, and OSPAR will have a clear message to engage with competent authorities and the fishing industry in order to work together to reduce the waste generated by dolly rope.

Potential options for future work (next steps)

OSPAR will review the final outcomes of the specific projects still underway (namely DollyRopeFree and DRopS), and consider any appropriate alternatives identified and the application of best practices highlighted by the projects. From this point, engagement with competent authorities and the fishing industry in order to work together to reduce the waste generated by dolly rope will be possible.