



FINAL REPORT
2014 - 2017

Fishing For Litter Scotland



Fishing For Litter



Scotland 2014 - 2017



Foreword

There is no doubting that marine litter has become one of the main environmental issues of our time and Fishing For Litter is an excellent example of how to help tackle the problem. Since its inception, over 300 vessels have landed in excess of 1000 tonnes of litter, most of which was plastics. In doing so they have been helping to prevent environmental damage and associated economic harm. The considerable efforts of these fishermen and the harbours into which they land have earned the initiative awards from the RSPB and from Ocean Awards 2017 for their contribution to marine conservation. The fishing industry's active participation in this scheme is to be applauded and I am pleased that KIMO can contribute with this work to help meet the ambitions laid out in the Scottish Government's Marine Litter Strategy.

I congratulate KIMO and all the individuals contributing to Fishing For Litter on their work so far and wish them continued success in the future.

A handwritten signature in black ink, reading 'R. Cunningham'.

Roseanna Cunningham

Cabinet Secretary for Environment, Climate Change and Land Reform

Scottish Government

Project Summary

Fishing For Litter Scotland (FFL) is an environmental project, undertaken by KIMO UK, which is designed to reduce the amount of marine litter in our seas by physically removing it, whilst highlighting the importance of good waste management within the fleet.

Fishing For Litter is a simple idea. Participating vessels are given hardwearing bags to collect marine litter that is caught in their nets during their normal fishing activities. Full bags are deposited in participating harbours on the quayside and the bag is then moved by harbour staff to a dedicated skip for disposal. Operational or galley waste generated on board remains the responsibility of the vessel and continues to go through the established harbour waste management system.

The project provides the bags and covers the waste costs and the fishermen and harbour staff volunteer their time.

The project is operated in line with the OSPAR Commission's Fishing For Litter Guidelines (currently OSPAR Agreement 2017-08). By ensuring that there is no additional cost burden to fishermen, the project encourages the bringing ashore of litter inadvertently caught during normal fishing operations.

KIMO UK

The project was run by KIMO (Local Authorities International Environmental Organisation), an association of coastal local authorities whose goal is to eliminate pollution from Europe's Northern Seas. The organisation's members include local authorities in Norway, Denmark, Sweden, the Faeroe Islands, the Netherlands, Belgium, United Kingdom, Republic of Ireland, the Isle of Man and the KIMO Baltic Forum. KIMO UK is the United Kingdom network of the organisation.

For more information see www.kimointernational.org

Marine Litter

Marine litter is defined as “any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. Marine litter consists of items that have been made or used by people and deliberately discarded into the sea or rivers or on beaches; brought indirectly to the sea with rivers, sewage, storm water or winds; accidentally lost, including material lost at sea in bad weather (fishing gear, cargo); or deliberately left by people on beaches and shores.” (UNEP 2005: 3). Marine litter consists of many slow degrading materials and the continuous input of large quantities of such items from many land and sea based sources results in a gradual build up in the marine and coastal environment.

It affects many sectors and whilst the fishing fleet is a source of marine litter it is also badly affected by the increasing amounts in our seas. The KIMO report on the Economic Impacts of Marine Litter (Mouat, Lopez Lozano and Bateson, 2010) found that rubbish costs the Scottish fishing fleet approximately £11.5 million each year. Dumped catch, repairs to gear and lost fishing time due to marine litter costs each vessel in the Scottish fleet between £15,000 and £17,000 each year. Each boat is calculated to take 41 hours a year to remove marine debris from its nets, a significant amount of a boat's days at sea allocation. It is therefore essential that continued action is taken to reduce what is a significant marine pollution problem.

In addition to this, huge amounts of litter is washed up around our coastline every year creating an eyesore which costs our local authorities money to clear up and, ultimately, results in higher taxes for us all. It is, therefore, in everyone's interest to ensure that there is as little marine litter as possible.

Marine litter is a global problem which can be a threat to ecosystems, has socio-economic costs and can also pose a threat to human health. In addition, marine litter threatens the realisation of a Scottish vision for *'clean, healthy, safe, productive, biologically diverse marine and coastal environments, managed to meet the long term needs of nature and people'* and may also impact upon *Scotland's Strategic Objectives, most notably the drive to become a Greener, Wealthier & Fairer, Safer & Stronger and Healthier Scotland.*

Project Targets 2014-17

It is proposed that the essence of the project remains the same as previous phases but the specific targets and aims were added and adjusted.

- To maintain the existing network of 14 Fishing For Litter harbours whilst seeking to involve at least 6 extra harbours who have asked to be included in the projects future.
- The involvement of 300 vessels in the project.
- The collection of 500 tonnes of marine litter.
- Production of further educational packages aimed at fishermen and fishing communities to highlight the origin and impacts of marine litter to encourage best practice.
- Work with Seafish / MCA approved training providers to incorporate marine litter content in courses aimed at new entrants and experienced fishermen, in order to reinforce the project's objectives.
- Engage the processing industry to highlight the impacts that their waste management practices may be having on the marine environment.

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- Work with primary school children and the general public (mainly through promotional events) to highlight the origin and impacts of marine litter.
- Work with a social scientist from Plymouth University to map any behavioural change of crew entering into the project (subject to separate funding).
- Monitor the waste in skips, where possible, to provide policy makers with an overview of the type of litter collected.
- Submit the Scotland FFL data to OSPAR annually and provide data when requested for the 2014 OSPAR FFL review.
- Produce promotional materials, attend promotional events, and undertake PR & marketing.
- Produce quarterly progress reports, yearly activity reports and a final project report with a detailed waste analysis.
- Work with local authorities and waste companies to investigate and identify any materials suitable for recycling or reuse.

Desired Strategic Outcomes:

- Raised awareness of the Social, Economic and Ecological impacts of marine litter within the fishing industry and wider fishing communities.
- A change in waste management practices within the fishing industry.
- The direct removal of marine litter from the marine environment within fishing areas.

Project supporters



Project Timing

The three year project ran from the 1st of April 2014 until 31st of March 2017.

History

The Fishing for Litter initiative was originally started by the North Sea Directorate of the Dutch Government in co-operation with the Dutch Fisheries Association in March 2000. The aim of the initiative was to clear the North Sea from litter, by providing bags to bring ashore the litter that is gathered in the nets as part of fishing activities and disposing of it on land.

Pilot schemes, operated by KIMO International, were run as part of the Save the North Sea Project in Scotland, Sweden, Netherlands and Denmark until 2005

After this, KIMO UK started its Fishing For Litter scheme in 2005 and has operated a series of 3 year projects since (FFLS 2005 – 2008, FFLS 2008 – 2011, FFLS 2011 – 2014 and FFLS 2014 – 2017) to keep up the good work.

Scottish fishermen have demonstrated how successful the project can be and numbers of participating harbours and vessels have steadily increased as word has spread about how effective and easy to operate the scheme is.

KIMO UK continues to operate its sister project in Devon and Cornwall (Fishing For Litter South West) and operated a forum for Fishing For Litter Coordinators in the UK and Ireland. The forum was set up to share best practice and provide assistance to those seeking to start new projects. Members of the forum included Fishing For Litter Scotland (KIMO UK), Fishing For Litter South West (KIMO UK), Fishing For Litter Northern Ireland (Northern Ireland Fishery

Harbour Authority (NIFHA)), Fishing For Litter Holderness (Yorkshire Wildlife Trust (YWT)) and the Welsh Government who were seeking to set up a Fishing For Litter scheme.

Beneficiaries

Reducing levels of marine litter benefits fishermen themselves as marine litter damages their catches and causes a loss of valuable time at sea. Due to the estimated reduction in litter arriving ashore there is also a benefit to local authorities that are required to clean amenity beaches in their area as well as for the public who use them. Other positive impacts will be experienced by various other industries in coastal areas for example, in the aquaculture industry as marine litter can clog and damage cages and nets.

The removal of marine litter from the seabed is of a large benefit to wildlife. Plastic, the predominate type of marine litter, can cause entanglement or be ingested by marine mammals and birds. Studies show that 96% of fulmars in the North Sea had plastics in their stomachs, with an average of 34 pieces. Studies have also shown the alarming prevalence of microscopic plastic particles in northern seas, which can be taken up by filter feeders.

Harbours

The project aimed to maintain the network of seventeen harbours participating at the end of the 2011 – 2014 project and recruit and additional 6 harbours. Recruiting of additional harbours was initially delayed because of uncertainty in funding. However Buckie, Macduff, Dunbar and Troon joined the scheme during the period bringing the total to 18 and at the end of the March 2017 Lerwick, Cullivoe, Scalloway, Fraserburgh, Peterhead, Eyemouth, Kirkcudbright, Isle of Whithorn, Campbeltown, Rothesay, Tarbert, Ullapool, Kinlochbervie, Scrabster, Buckie, Macduff, Dunbar and Troon were participating.

Other harbours, including Pittenweem and Mallaig, are also showing great interest in participating in the project and it is hoped that future budgets will enable them to participate.



Boats

The project aimed to involve 300 trawler boats in the scheme. Because of the simple nature of the project it is also thought that some boats may have been taking part in the project without officially registering and thus the actual number of boats landing marine litter in Scottish harbours maybe higher than that recorded. It was, therefore, believed that the list of member vessels did not reflect the current participation and that a new approach to recording member vessels was required. In February 2017, it was suggested by some fish producer and fishermen's associations that they would invite their membership to participate and provide lists. The Scottish White Fish Producers and the Clyde Fishermen's Association were amongst those to do this. With these two accounting for more than 265 vessels alone, it is believed that the target of 300 vessels has been easily exceeded.

Tonnage/monitoring

There were two aspects of the recording of data about the litter landed – Tonnage and Monitoring. Tonnage (weight) was recorded at most ports using the net weight of the skips as they were collected and the waste delivered to licensed disposal sites. Monitoring gives an indication of type of litter landed was this was recorded in some harbours where staff volunteered their time to analyse the bags and record the composition of the litter using the standard bad monitoring sheet (incorporated in OSPAR's original Guidelines for Fishing For Litter and used since the start of the scheme in 2005).

Tonnage was not recorded at four smaller ports where the local authorities supply 1100 litre bins and empty them as part of their rounds and, therefore, the actual total is higher than the reported amount. There is also anecdotal evidence that large items of waste, such as metal, do not always make it into the projects waste stream as they have a value that can be realised elsewhere.

The original target was for 2014 – 2017 was to land 500 tonnes of marine litter. At the end of the three year project 337.33 tonnes had been landed. This brought the grand total since the initiative's inception in 2005 to 1,071 tonnes. This is some way short of the 500 tonne target and was due to a number of factors, most significantly the uncertainty in funding slowing the recruitment of new harbours. This is discussed under 'Finance'. Other factors include that the 2011 – 2014 project reported a drop of in participation across the period to under 10 tonnes/month and the end of the period. This has been reversed and Figure 1 shows that the recorded collection has, on average, returned to above 10 tonnes/month. Another factor is that the amount of litter, particularly heavy items that are unlikely to float, found on the seabed in fishing grounds is decreasing. There is certainly anecdotal evidence from skippers that they are collecting fewer and fewer large items.

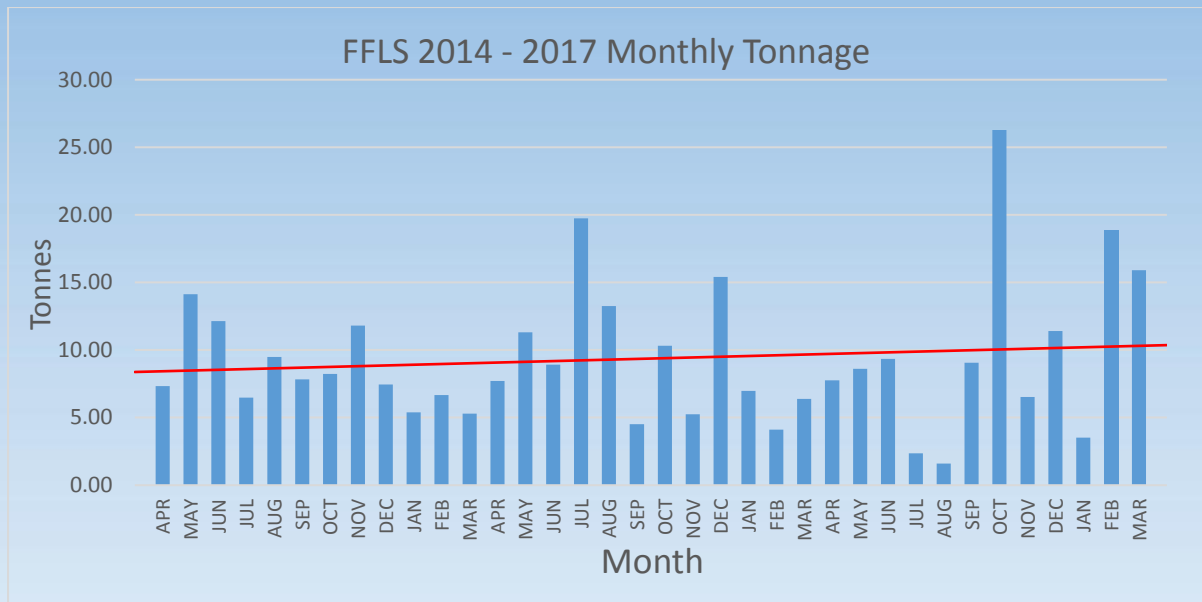


Figure 1: Monthly tonnages.

Monitoring only took place in a small number of harbours and therefore the data can only give an indication of the types of rubbish that has been found on our sea bed. The monitoring data was entered into an Excel database that was used to analyse the data.

As monitoring of bags was undertaken by volunteers, guidelines for monitoring Fishing for Litter waste were used. It was understood that the methods employed would not meet established scientific criteria but that the data collected could be useful in getting an indicative picture of what was being caught.

The monitoring data was analysed to try and identify the types of waste landed. Figure 2 shows the composition of the marine litter landed by material type. It clearly shows that plastic is again the most abundant type of litter landed by the number of items. This is in line with other marine litter surveys. The amount of heavy metal objects is higher than beach monitoring but this would be expected as these items are more likely to sink than be washed up on a beach.

Litter by Type

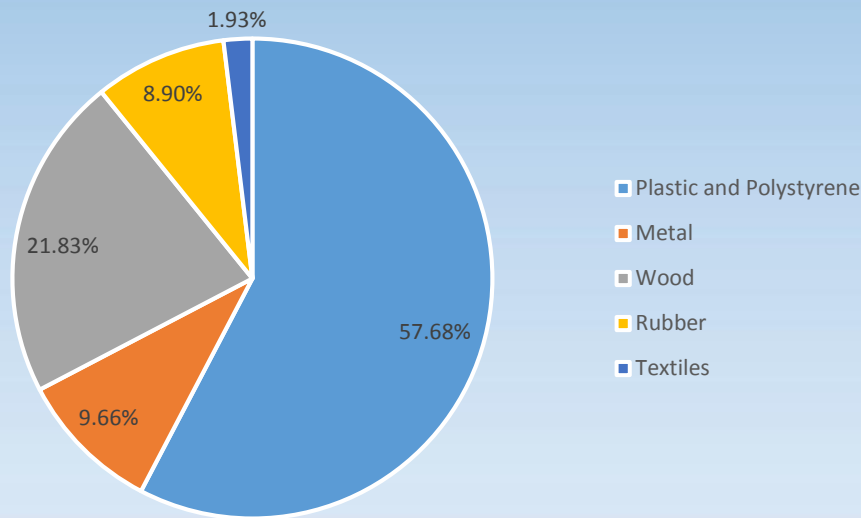


Figure 2: Litter by material type

Figure 3, below, shows the frequency of items found by material type and description.

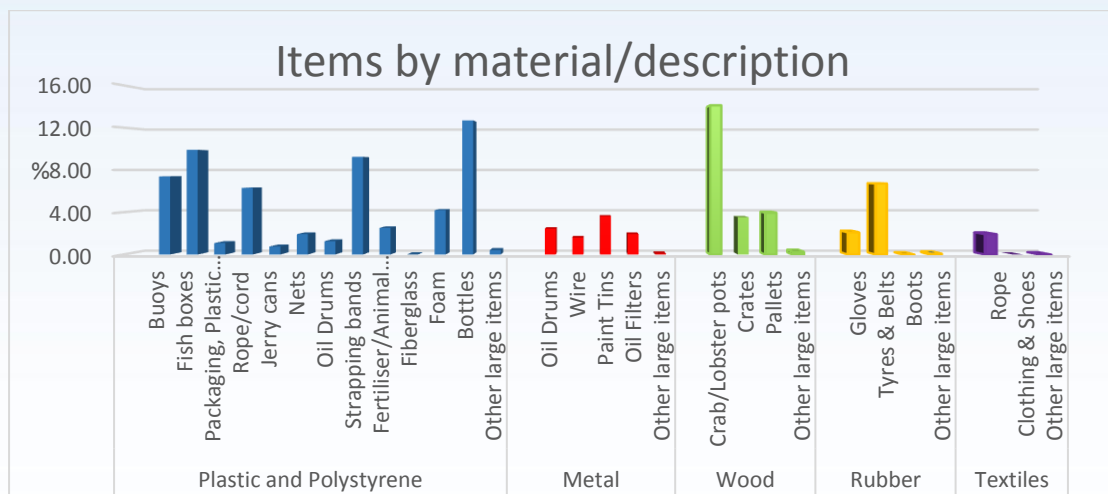


Figure 3: Items found by material and description

Recycling

It was hoped that some of the waste could be recycled. There is evidence that some of the project's waste companies are attempting to recycle what they can but it has not been possible to measure this and it is unlikely that a significant amount of the waste is diverted from landfill. As the material landed had spent time at the bottom of the sea, and it was often covered in marine growth, it is usually considered too contaminated for recycling. It is felt that asking

fishermen and/or harbour staff, who volunteer their time to make the project work, to separate the waste for recycling would have a negative effect on the number of boats taking part in the project and therefore the amount of litter removed from the marine environment.

One area that showed promise was the recycling of nets. A number of nets were sent to Plastix Global in Denmark to trial recycling. From the outset it was known that there would be a 'value gap' between the cost of transport, sorting and processing of nets and the value of the recovered product. Initially, Plastix put this at £50/tonne but in practice it was much greater (£150 - £300/tonne).

This initiative was initially very promising. Plastix were able to accept all kinds of demersal and pelagic nets (not only nylon nets) just as they were brought ashore – including attachments such as float and ground gear. At £50/tonne the cost promised to be far less than landfill and as the end product was re-extruded plastic for manufacture of new plastic products, perhaps even new nets, it was also a very attractive 'circular economy' solution. More work is required on this in the future and it is the belief of the author that recycling of end of life nets is feasible within the cost of the overall cost of transport and disposal to landfill.

Financial

The project had a projected budget of £301, 480 and the actual spend (unaudited for 2016/17) is £ 267,492. This was due largely to the lower than planned amount of litter collected.

At the beginning of the period, only £203,285 of the required funding had been secured with significant shortfalls for 2015/16 and 2016/17 predicted. This led to uncertainty and delay in the project's ability to recruit new ports and members and contributed significantly to the lower than planned amount of litter collected. The funding gap for 2015/16 was closed by an additional grant from Marine Scotland and the gap for 2016/17 was closed after an application to the European Maritime and Fisheries Fund was successful.

Promotional Material

The project has produced promotional leaflets that provided information on the scheme. Upon joining the scheme skippers and their crews were given project information, full instructions and waste guidance notes. Newsletters were distributed to update participants on project activities.

Exhibition materials, including banners and a tablecloth, were created to promote the scheme at meetings, conferences and fishing industry events. 500 pens with a pull out 'banner' promoting the project were also produced and distributed.

Promotional Activities

The project exhibited at the Fishing Exhibitions (Skipper's EXPO) held in Aberdeen in 2015 and 2016. This had two aims, firstly it is a useful place to meet existing project participants and promote the scheme to new skippers and secondly it gives the chance to liaise with other stakeholders and policy makers in an informal setting.

Presentations were also given to local, national and international meetings to encourage backing for the initiative and to share best practice.

Education

The main focus of the education activities was primary aged school children. An interactive lesson plan aimed at Primary 2 to Primary 5 children was designed and delivered to 24 groups of children. The events highlighted the sources of marine litter, its impacts and invited the children



to get involved by taking away three pieces of litter whenever they visited a beach. The lessons were well received with return invites from teachers. The project also produced lesson packs to allow teachers to deliver the lesson for themselves. These contained everything needed including a CD with the lesson plan and presentation and petri dishes with examples of plastic that may be found in the average Fulmar's stomach.



The general public were engaged at events such as Stonehaven Harbour festival and a lesson plan was designed delivered to basic crew students at The Scottish Maritime Academy in Peterhead.

Press Coverage and Awards

During the project period, marine litter, and ocean plastic in particular, was a very topical subject. Fishing For Litter was one of the few practical initiatives tackling the problem head on and attracted media coverage as a result. The project issued press releases over the three years to highlight project achievements and milestones, they achieving coverage in industry publications, local and national newspapers and on numerous internet sites.

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In November 2015, Fishing For Litter Scotland was presented with the RSPB's prestigious 'Nature of Scotland Award' for Marine



Conservation. Sponsored by Northlink Ferries, this award recognises an "outstanding contribution to the conservation or sustainable management of Scotland's precious marine resources". The award is great

recognition of the hard work carried out over the previous ten years by fishermen and harbour staff right around the Scottish coastline.

Ross Dougal, President of the Scottish Fishermen's Federation, said: "We are delighted that the work of our fishermen in removing marine litter has been recognised with this prestigious award. Scottish fishermen are enthusiastic participants in the Fishing for Litter initiative and are committed to ensuring that our seas are clean and healthy."



Fishing For Litter was also recognised in the Ocean Awards 2017, in the 'Seafarer' category. The initiative was selected as one of two finalists in the category and was 'Highly Commended'.

The Seafarer's Award recognises the individual or group from the sea-faring community that has done the most this year to advance marine conservation.

The project passed a major Milestone at the end of 2016 when it recorded its 1000th Tonne of marine litter landed. The occasion was marked with an



informal reception at Peterhead Harbour. The event was attended by Professor Colin Moffat, Head of Science at Marine Scotland, who delivered an inspirational talk on marine litter and plastics in general.



The project featured on a number of local and national radio stations including an appearance on the BBC's popular prime time production 'The One Show'. Watched by 4 Million viewers, the feature was broadcast live from Peterhead Port and highlighted the benefits to both the fishing industry and the environment.





A new website was launched and now provides a portal for information about Fishing For Litter throughout the UK. Since it was published, it has attracted attention worldwide and resulted in enquires about the project for as far afield as Peru. Additionally, social media continues to be utilised to spread the word about the project, a larger audience. The website can be found at: www.fishingforlitter.org.uk

Fishing For Litter and Policy

Marine litter, and plastics in particular, is widely reported as a significant and growing problem. Governments are now taking practical steps to tackle it. The UK Government recognised Fishing For Litter as an existing measure in helping achieve 'Good Environmental Status' for marine litter as required by the Marine Strategy Framework Directive. Scotland's Marine Litter Strategy has set out five strategic directions and new actions to be undertaken. The first two of these Strategic Directions reference actions to expand and promote Fishing For Litter in Scotland:

STRATEGIC DIRECTION 1: Improve public and business attitudes and behaviours around marine and coastal litter, in co-ordination with the national litter strategy

- *New Actions:*
 - *Promote the KIMO Fishing for Litter [19] project, amongst ports not currently members of the scheme, and align with OSPAR recommendation to promote establishment of the scheme.*

STRATEGIC DIRECTION 2: Reduce marine and coastal based sources of litter, in co-ordination with land sourced litter being reduced by the national litter strategy

- *New Actions:*
 - *Expand KIMO Fishing for Litter initiative to contribute to a reduction in marine litter.*
 - *Implement the OSPAR recommendation to promote the establishment of KIMO Fishing for Litter initiatives in fishing harbours and facilitate:*
 - *The raising of awareness of the social, economic and ecological impacts of marine litter among fishermen and within the fishing industry;*
 - *A change in waste management practices within the fishing industry;*
 - *The direct removal of marine litter from the marine environment in the course of normal fishing activity*

OSPAR's Regional Action Plan set out under Theme C – Removal Actions, action 53:

Strengthen the existing OSPAR Recommendation 2010/19 on the reduction of marine litter through implementation of fishing for litter initiatives, including by reviewing the option that any vessel involved in the scheme can land non-operational waste at participating harbours in OSPAR countries.

OSPAR Recommendation 2016/01 on the reduction of marine litter through the implementation of Fishing-for-Litter initiatives was adopted at the Commission and entered into force from 24 June 2016. This recommendation requires “Contracting Parties should promote the establishment of Fishing for Litter initiatives in line with OSPAR Agreement 2007-10...”. The commission published agreement OSPAR Agreement 2017-08 – Fishing for Litter Guidelines in 2017

The Scottish Marine Litter Strategy contains new actions:

- *‘Extend existing Port Waste Reception Facilities to include fishing vessels.*
- *‘No-special-fee’ reception facilities for vessels and compulsory discharging of waste in port for all vessels including fishing boats’*

If introduced, these actions have the potential to change the shape of future Fishing For Litter projects. On the one hand, if there is no additional charge to a fishing vessel when landing litter caught in nets, then any Fishing For Litter project would not need to support the waste disposal costs – just raise awareness and, perhaps, continue to provide bags. There would also be potential cost savings if FFL waste could be comingled with other port waste thereby reducing the number of skips required and increasing the potential for recycling. On the other hand, there will be an additional cost to ports to accept the FFL waste. If the fishing industry have to bear this cost (for waste largely not of their making), it may discourage participation.

The creation of these actions, recommendations and guidelines demonstrates that Fishing For Litter is seen as an important and effective measure in reducing the problems created by marine litter.

Observations

The concept of fishing for litter as an effective method to engage one of the main stakeholders to reduce marine litter at sea has received considerable support within the industry. It has also been able to demonstrate that through a centrally coordinated role the project has been able to apply a consistent and uniform approach nationally, taking in to account local conditions. The national network of harbours has enabled registered vessels to actively participate wherever they were operating in Scotland.

As a concept there are still avenues to explore to enhance and improve the operational aspects of the project and challenges to encourage better participation within the industry.

Although changes in regulation and enforcement for litter offences are essential tools in reducing the problem, it is unlikely that they will achieve the behavioural change required alone. It will be important to engage marine industries in a way that they take ownership of the problem and work towards a solution and Fishing for Litter can be an effective tool to facilitate that change in the fishing industry.

In 2014, the Department of Food and Rural Affairs commissioned 'An evaluation of the Fishing for Litter (FFL) scheme - ME5418: Fishing for Litter in the South West'. This studied KIMO UK's sister FFL project in South West England and stated that '*KIMO's FFL is thought to: target marine litter more broadly, encourage greater involvement by fishers, and have wider geographical coverage. It was regarded as good value since it does not involve payment for participants which could undermine intrinsic motivation. In summary FFL has established itself as the leading scheme for fishers to remove marine litter from the sea.*' and concluded that '*If participation in the FFL litter scheme continues to increase and expand to other areas this could lead to a widespread pro-environmental behavioural norm across the fishing industry (of not throwing anything overboard and keeping hold of any marine litter found at sea), and facilitate the framework of reduction measures from the MSFD.*'

The project has demonstrated that it can contribute to changing practices and culture within the fishing sector, provide a mechanism to remove marine litter from the sea and seabed, and raise awareness among the fishing industry, other sectors and the general public.

The Future

Fishing For Litter has proved itself to be a valuable tool in the fight against marine litter and should continue. The project has successfully secured funding (largely from EMFF) for a further three years. However, with Britain leaving the European Union this source of funds will not be available beyond 2020. Additionally, it has become increasingly difficult to attract private funding for Fishing For Litter. If Fishing For Litter Scotland is to continue beyond March 2020, work on solving these funding issues will need to start now.

Many thanks to the project sponsors whose funding made the project possible and to those individuals and organisations who supported and promoted the project along the way.