

March 2020



**SCRAPbook**  
targeting coastal litter

# SCRAPbook

## Marine Litter Officers

### Case Study

## In the air

There are major problems with litter on Scottish coasts, but the spatial distribution of coastal litter accumulation is poorly understood. Increasing scientific, media and societal interest in coastal litter pollution, coupled with policy commitments such as the **Marine Litter Strategy** (2014) and the **Marine Strategy Framework Directive** (2008), highlighted the importance of better understanding our coastal litter problem, and the need for a baseline set of data to illustrate the current situation.

Launched in April 2018, **SCRAPbook** (Scottish Coastal Rubbish Aerial Photography) has been an exciting project founded by **UK Civil Air Patrol (Sky Watch)**, **Moray Firth Partnership** and **Marine Conservation Society**, using aerial photographs taken from light aircraft to map coastal litter hotspots around the Scottish mainland coastline. Sky Watch volunteer pilots surveyed the coastline, photographing litter on the coast below. Use of aerial imagery allowed a more efficient method of surveying the large coastline of Scotland compared to land- or marine-based surveys, at a high enough resolution to locate larger (>10cm) litter items. Another key advantage to this method was the ability to survey remote or inaccessible areas of coastline that would not be otherwise feasible. These photographs were classified by volunteers, based on the intensity and distribution of litter visible in each image.

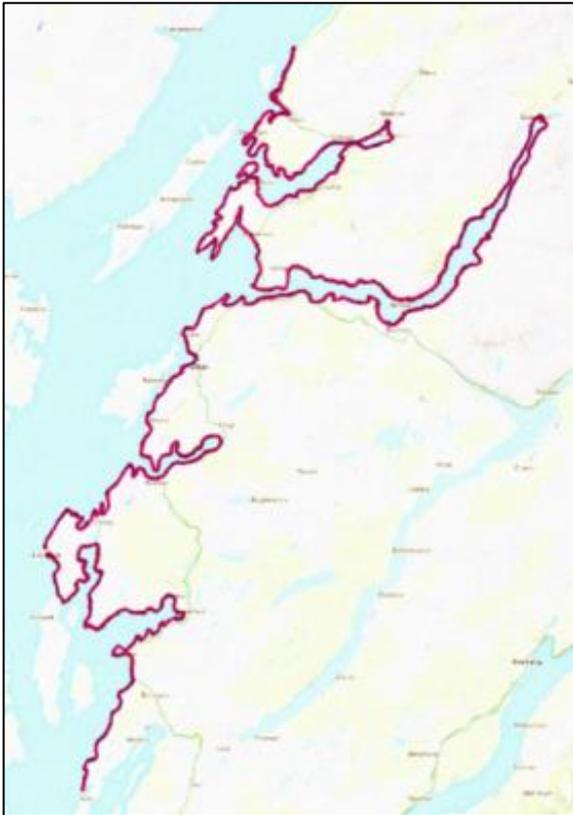
The primary outcome of the project was the **SCRAPbook interactive map**, (<http://www.scrapbook-scotland.org.uk>) which shows the spatial distribution and intensity of macro-scale coastal litter through colour-coded points, with photographs attached to points with the greatest litter accumulation. The map can then be used to inform further, more detailed, on-the-ground surveys into specific litter types.

The SCRAPbook dataset has for the first time provided a spatially comprehensive overview of the distribution of coastal litter hotspots around Scotland. Going forward, this can be used to better understand the processes behind coastal litter accumulation and distribution, and to inform national marine planning and policy. The 2018 mainland dataset has been uploaded to Marine Scotland's National Marine Plan interactive (NMPi), contributing to Scotland's National Marine Plan.

## On the ground - Marine Litter Officers

Additional funding from Marine Scotland employed two Marine Litter Officers (MLOs) based in Argyll, with the role of tackling the litter problem on the ground. Their collaboration with local businesses has opened up new solutions such as the use of landing craft to access remote locations and reduced the issue of the disposal of collected waste through businesses offering to take collected litter for repurposing or disposal. The value of their

role is in tackling large litter items that would be difficult for members of the public to remove (this involves physical collection and removal of the litter itself) and highlights a key point – large litter items are often historic litter, and hence once they are removed, *the issue is unlikely to arise again.*



*The geographic area covered by the Marine Litter Officers on the west coast of the Scottish mainland.*

The Marine Litter Officers had the task of clearing up the coastline of North Argyll, using SCRAPbook aerial photographs. 91 photographs of Category 4 and 5 litter were identified, covering a 125 mile stretch of coastline. Photographs identified as Category 4 contain localised, high density litter, and Category 5 photographs contain widespread, high density litter.

Firstly, the MLOs would try to identify the litter deposit using the aerial image. Each image contains the GPS location of the plane when the image was taken, so identification using Ordnance Survey maps is required. Ground reconnaissance was then undertaken, to establish more information on type, size and location of litter. In addition, ground truths on other litter deposits which may not have been visible in the aerial photographs (due to ground cover etc), access to site, and other issues were established in this first site visit. In some cases, access by boat was

required and local boat owners and businesses helped tremendously with this, often providing both access and facilities for removal. MLOs had Risk Assessment Certification and undertook dynamic Risk Assessments at each stage and site visit.

MLOs then considered whether they were able to remove the litter deposits themselves, or whether a co-ordinated approach was required. Their collaboration with local businesses opened up new litter removal solutions such as the use of landing craft to access remote locations, and reduced the issue of the disposal of collected waste. On the majority of site visits, the MLOs met with local business and members of the community who were keen to help. Wherever possible they tapped into local resources and have been assisted by farmers and boat owners who have used their time and resources to locate and remove litter to a site for removal.



*Mussel buoys found at Loch Creran*

In the Argyll area, mussel buoys formed a key issue, having often been abandoned by industries no longer operational in the area. The MLOs approached fish farm companies that operate within the area to ask for their assistance in removing litter in areas with more difficult access. Fish farms are well placed to help as they are one of the few businesses operating in these areas daily. Their boats are the right type for

safe litter removal - they have landing crafts and small power boats which are shallow drafted so they can easily access the shoreline and safely get the litter aboard. They also have the personnel to remove the litter. Fish farm companies are already regularly out beach cleaning and MLOs found they were very receptive to helping and welcomed being given exact locations of litter.

The MLOs also thought creatively about reusing and recycling litter and asked the community to suggest ways to prevent waste going to landfill. They worked with a community garden who took large amounts of plastic and will reuse this as garden planters and water storage containers. A local garage takes retrieved tyres, machinery, batteries and oil (without charge) and will recycle/dispose of this often hazardous material in line with governing standards.

Argyll and Bute Council provided support in offering the collection of litter and the free disposal/recycling of litter at Moleigh Waste Disposal and Recycling Centre. Any coastal litter which was unable to put back into some form of use was taken to Moleigh. The MLOs found that the removal of waste from site was best undertaken by their own vehicles due to the remoteness of the sites and the general complexity of arranging a third-party collection when access times and landowner sensitivity was an issue.

## Key Outputs

Two Marine Litter Officers were employed in Oban on a full-time basis from March 2019 to February 2020. Office space was donated in-kind by Argyll & Bute Council, however in practise, the MLOs tended to work off-site. During the period:

- **44 different beaches**/stretches of coastline were cleaned of litter, equating to approximately **25 miles of coastline**.
- **More than 90** days of cleaning took place – including reconnaissance, partnership working and planning.
- Approximately **10 miles of coastline** are due to be cleared by different fish farms, in difficult to access areas.
- **More than 4500kg** of waste was collected – about the weight of two rhinos!

Estimate amounts of collected litter:

### Plastics

Mussel floats, pontoon floats and fish farm piping	2400kg
Fish boxes, drums, barrels, agricultural plastics	600kg
Buoys	200kg
Tarpaulin	120kg

### Rope

Fishing ropes various	300kg	1200m
Fishing net	140kg	

### Tyres

Car tyres	150kg	15 tyres
Agricultural/industrial tyres	160kg	8 tyres
Wheels	90kg	

### Polystyrene

Internals of tenders and pontoon floats	200kg
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### Liquids

Engine oil	120l
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### Metals

Oil filters, fencing, engine parts, corrugated farm debris	150kg
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The amount of litter and debris removed could not be accurately counted, due to the amount of time required to do this, different types of litter and removal arrangements.

Founding partners:



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