

Origin of Beach Waste at Barry Buddon in Angus



Beach Waste at Barry Buddon, Angus

1. Introduction

This report has been written to raise awareness of household and possibly clinical waste being washed up on the beach at Barry Buddon in Angus.

Volunteers from Monifieth Eco Force and Rotary have been beach cleaning along this area of the coast for more than a decade. The photo on the right is typical of the scene which greets volunteers particularly after storms and high tides.

It is only in recent years that volunteers have begun to realise that the type and volume of waste collected is not typical of litter found on other Scottish beaches. It is also different from that found in other known litter sinks such as Arrochar where huge amounts of litter flows in from the Clyde and the Irish Sea.

Although the waste at Buddon includes plastic, many of the bottles, and packaging date back to the mid to late twentieth century. For example, it is relatively easy to collect washing up liquid bottles which are at least fifty years old along with pre-decimalisation food and sweet packaging which dates to pre-1971. It is known that plastics can take many decades to decompose in the sea. However, if they have been in the water for more than fifty years we would expect a greater level of degradation amongst some of the hundreds of items found. In April 2023 almost 4,000 bottles and containers were collected. Even after the massive clean up which involved more than 120 volunteer hours very old items are still regularly washing in.



Seonaid: April 2023


Mysha: May 2023

Many people who have spent time beach cleaning will have found at least one old item of litter during their clean up activities. However, it is highly unusual to find hundreds of such items and this is exactly what has been found at Buddon beach. One of the Monifieth Volunteers, Seonaid McGurk has found so many that she has spent the last five years researching the origins of the objects and has even written a book recording all her finds (A Beachcomber's Journal). It has been suggested that the waste may originate from landfill because of the number of glass items which can be traced back to the Victorian era. The glass jar in the photograph right is one of many which was found as recently as June 2023.

Found When and Where?
 Found on 17th June 2023.
 On the high tide mark between the Sentry point and the Buddon burn.
 Weather conditions Sunny. Sea Calm.

What is it?
 A glass jar which originated from Peck's. It is dated 1929 -1930 and is only slightly abraded.

The jar would have contained either meat or fish paste. Peck's was founded in 1891 and was based in South London. It has a flat section on the back where the label would have been.



Seonaid June 2023

2. Location of the Waste

The waste is almost always found either on or above the level of the high tide mark. Most of it is collected between the level of the MOD Sentry point and Buddon burn highlighted on the map below. However, historic waste can also be found along the beach any where from the Monifieth Burn right up to Buddon lighthouse. Very little waste is ever seen on the foreshore itself which can give the initial impression that Buddon is a beautiful stretch of clean beach. It should be noted that the foreshore is not in the ownership of the Crown or the Local Authority. As far as we have been able to ascertain it is not in the ownership of the MOD.

The fact that the waste is washed up onto MOD land presents many challenges. The Defence Infrastructure Organisation (DIO) lend a tractor and trailer to support volunteers to clean the waste twice per year. However, all other beach cleaning has to be done without any vehicular support on non-shooting days. A number of volunteers from along the Angus coast are now involved in trying to monitor and clean the area. This is very challenging as they have to access the beach on foot during non-firing times and carry the waste back to their vehicles in the Monifieth car park.



3. Potential Sources Of The Waste Escape

Initial enquiries by volunteers has revealed that there is probably a former landfill site in the area now occupied by Riverside Caravan Park and the football pitches. Volunteers have inspected the dune face in this area carefully on numerous occasions and have never seen any evidence of waste within the dune structure itself. However, it is worthy of note that this is an unstable and rapidly changing dune system. We believe that it should be relatively easy for SEPA to establish whether or not the dune system at Monifieth/Buddon is the source of waste escaping into the marine environment.

We have also had the opportunity to speak briefly with Professor Rob Duck who is a renowned expert in the River Tay and its tributaries. His immediate response was that the presence of so many old glass items is strongly suggestive of waste escaping from an eroded landfill site. If the dunes themselves at Monifieth/Buddon are excluded as the source then he is of the view that the waste is most likely to be flowing from the Dundee direction. He also added that there is a much smaller possibility that the waste could be coming from an old eroded site in the St Andrews area of the Fife coast.

The idea that the waste is flowing from the vicinity of Dundee is supported by the appearance of another unusual item washed up in the same location. A full sized memorial bench was thrown into the Tay at Riverside by vandals and washed up at Buddon in April. The bench was identified by its plaque which was to commemorate workers who have been killed or injured in the course of their employment. This was installed in gardens on the waterfront in Dundee in 2006 by students from Dundee College to commemorate International Workers Memorial Day. The photos below show the relationship between Riverside where the bench entered the Tay and the point at which it was washed up on Buddon beach. We are hoping that the bench can be returned to the gardens in the near future.

Point at which memorial bench entered the water in Dundee



Historically, waste disposal has taken place in landfill sites along various sections of the Dundee-Angus coastline, where landfill has been used for land reclamation. Identifying which area of contaminated land has eroded and is leaking contaminants may therefore be a complex and challenging investigation. It has been suggested by some that waste couldn't possibly escape from the old landfill site at Invergowrie as it was fully capped and restored in 2007 and has subsequently become a Nature Park. However, this would be an obvious site to review as the Dundee Coastal Study Stage 2 report of 2011 identified the site as being at high risk of erosion

and leakage of contaminants. The report states; 'without erosion protection there is a high potential for contaminants to be exposed and have a negative effect on the local environment and human health from material buried within the capped landfill site escaping as the land is reduced during storm events, high tides and flooding' (table 3.5).

4. Evidence that the waste originates from landfill

In considering which of the historic landfill sites the Buddon waste may be coming from, it may be worth considering which sites were more likely to have accepted clinical waste historically. Most of the old medicine bottles below date back to the early 1900s. In April 2023, a full prosthetic limb with a shoe attached was also found washed up.

What are they? Old medicine bottles dating back to the early 1900s



Photo below; 2 Victorian poison bottles, Milk of Magnesia, Kruschen Salts and Galloways Cough Syrup.



Left: Example of the type of medicine bottles found on **8th April 2023**.

Around 30 were collected in total and most of them were glass. Some had contained drugs which would have been administered by injection.

Clearly the plastic syringe and bottle are more modern but nevertheless adds weight to the idea that clinical waste forms part of the landfill escape.

What are they?

Old Glass Milk Bottles. Note that they are in good condition and most of them originate from the Dundee area. From Left to right;

1. Newton of Baldovan, Dundee
2. Guild's Dairy, Dundee
3. James Fitchet, No 3 Holding, Dryburgh, Dundee
4. DPM, Dundee 1933
5. Forthill Dairy, Broughty Ferry 1949
6. G Bathie, Shepherd's Loan, Dundee
7. John Kerr, Balfield Dairy, Dundee
8. SCWS (Scottish Cooperative Wholesale Society)
9. R T Ramsay, Dundee
10. City of Perth Co-op Society Ltd



What are they?

The 2 oz Bovril bottle pre dates 1913.

The condiment bottles include 2 Bovril bottles, Goodall Backhouse, Lee & Perrins, and Brand & Co Mayfair The A1 Sauce.

The Heinz bottles are more recent.



Photos: Seonaid

What are they?

Glass Brylcreem and Cologne bottles. The Brylcreem bottles can be traced back to the 1930s.



What are they? Drinks bottles dating back to the early 1900s.



Photos: Seonaid

What is it?

This glass bottle is believed to be late 19th century as it has an applied neck and the glass is full of bubbles.

The Craigmillar Brewery was founded in 1880 at Ednam before relocating to Duddingston in 1886. It eventually closed in 1963.

The bottle is in remarkably good condition and the fact that it has survived intact despite having such a long neck is worthy of note.



Photo:
Seonaid

Hundreds of Vulcanised rubber stoppers, glass and ceramic stoppers have also been found. They originate from many different breweries, aerated water bottlers and soft drinks manufacturers. Seonaid records that vulcanised rubber was patented by Charles Goodyear in 1846 and the vulcanised rubber screw stoppers were invented by Henry Barratt in 1872.



Photo:
Mysha
June 23

What is it?

All found in May 2023. The 3 vulcanised rubber stoppers all originated in Dundee. Two from Stillade and one from Ballingall Brewers of Lochee (1844-1964). Vulcanised rubber stoppers were invented in 1872 and used up to around the 1960s when they were superseded by metal screw tops.



Photo: Seonaid

Even smartie lids hold a significance with the lids below being dated between 15 and 50 years old

What are they?

Smartie lids.

- Rowntree lids with lower case letters on reverse date from 1971 to 1988.
- The orange lid in the middle with the spaceship on it is from a SMARTIANS limited edition pack issued around 2002. The smarties inside were green with an alien face on them.
- The lids with embossed with 'smarties' date from 1988 when Nestle took over Rowntree but were phased out in 2005 when the tubes had pop up cardboard tops incorporated to reduce use of plastic.



Photo:
Seonaid

Conclusion

Volunteers believe that they have identified prima facie evidence to support the conclusion that waste is escaping from an eroded landfill site somewhere along the coast bounding the Tay Estuary. We believe that the volume and nature of the contaminants are at a level which warrant investigation. If proven, it is imperative that steps are taken to prevent landfill waste from entering the marine environment. Most of the MOD training area is a Site of Special Scientific Interest (SSSI) and an EU Special Area of Conservation (SAC), as well as a Special Protection Area (SPA) for its bird populations. However, many of these coastal birds are now on the 'species at risk red list'. Although investigation and remediation may be expensive we cannot continue to knowingly allow waste to enter the marine environment and to contaminate the coastline.

It should be noted that the burden on volunteers to remove substantial quantities of waste over the years has also been considerable. It is not acceptable to simply ask them to continue collecting it rather than preventing it at source. Angus Council has also paid a heavy price in the cost of removing everything uplifted and arranging for it's correct disposal over the years. They do not own the land and technically have no statutory duty to carry out this service. To their credit, they have done so to support the efforts of community volunteers.

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