

SEASTAINABILITY

DESIGNERS AND SCIENTISTS EXPLORING WAYS TO KEEP OUR LANDS GREEN AND OUR WATERS BLUE

Plastic Pollution on Ireland's Eye

Rebecca Flanagan



Figure 1: Visit to the site via SUP.

The Study

- Conducted by Seastainability founder Rebecca Flanagan of The Granny Flat Glenhedar, Claremont Road, Howth, D13R279. info@seastainability.com

- Seastainability is a collaborative blog and environmental group made up of three friends (an Ecologist, a Toxicologist and a Designer), each living in different parts of the world, collaborating together to promote sustainability to governments, corporations and individuals. Together we hope to educate and inspire individuals with what we have learnt and experienced on the topic of sustainability and environmental responsibility. We take action with both spontaneous and organised beach cleans and seek support from governments and local councils to tackle topics like single-use plastic, waste and pollution.
- The conservation of the SPA and SAC site, Ireland's Eye, is a study of interest for the Sustainable Development MSc undergraduate, Rebecca Flanagan, who has been conducting both group and individual clean-ups of Carraigeen Bay and the West Beach. Findings and details of a large group clean conducted in 2018 and 2019 are detailed below.

2018



Figure 2: 23 volunteers trekking 70 bags of marine debris to the ferry.

Seastainability together with Clean Coasts coordinated a specialised clean-up of Ireland's Eye off the fishing village of Howth on August 26, 2018. 23 volunteers were ferried to the site to undertake the massive clean-up and it is estimated that half a tonne of marine litter was removed from the Island during the two-hour clean-up. The volunteers were not only locals, but many came from the greater Dublin area.

Fig. 3 illustrates the tangled accumulation of plastic litter, lengths of tangled fishing ropes, fishing material, textiles, aluminium cans and glass which Seastainability volunteers cleared. Volunteers trekked 70 bags of debris across the Island where it was loaded onto two ferry boats and brought back to Howth Harbour.



Figure 3: Accumulation of debris



Figure 4: The matted debris runs the stretch of the shingle East Beach.

The wrecked pontoon washed ashore on Carraigeen Bay was eroded and leaching significant polystyrene debris along the shore (Fig. 5). Although it cannot be identified as being from the same source, across the sea on Claremont and Burrow beach, there is a spread of polystyrene debris matted into the marram grass dunes.



Figure 4: Polystyrene gathered matted in the marram grass burrows at Carraigeen Beach.

2019

Following our very successful beach clean-up of Carraigeen Bay on Ireland's Eye in 2018, Clean Coasts together with the Discovery Programme coordinated a beach clean-up on August 17 2019, in timing with Heritage Week.

20 volunteers took part in a day of events including ridding Carraigeen Bay and the East Beach of 15 full bags of debris during a 40-minute clean-up, which we estimated as 100 kg in weight. Key speakers from CHERISH (Climate, Heritage and Environments of Reefs, Islands and Headlands) gave talks on archaeology, geology and the impact that increased storminess and climate change is having on our treasured coastal heritage.



Figure 5: Findings of recreational litter and fishing tackle.

Our findings from the clean-up were that Carraigeen Bay and the shingle beach on the west of the island was quite littered with marine debris but on a positive note the pollution was greatly reduced compared to the same time last year. Much of the pollution found was fishing equipment such as ropes, net and tackle. The second most common finding was sanitary waste including tampons, tampon packaging, sanitary towels and cleansing wipes. There were also findings of recreational litter such as beach toys, inflatables and BBQs.



Figure 6: Nurdles matted into the inland grassy meadow up from the West Beach.

A new discovery made was micro plastic nurdles up inland from the West Beach on the grassy meadow (Fig. 7 and 8). Since the source of nurdles can only come from a water effluent or cargo spill at sea, these nurdles must have found their way afloat a particularly stormy high tide. There were a significant number of nurdles matted into the grassy vegetation and the clearing of such micro pollution would require more time and more volunteers.



Figure 7: The inland grassy meadow up from the West Beach.



Figure 8: The collection of nurdles hand-picked by one volunteer in ten minutes.

Most devastatingly the wrecked pontoon was still washed ashore on Carraigeen Bay and it's polystyrene core had eroded significantly since 2018. We found much polystyrene balls scattered among the Carraigeen Bay sand, marram grass, and disturbingly in burrowed nests. These nests could have been rat or puffin nests so we couldn't disturb them, however the level of white plastic puffs, which had been dragged into hollowed nests made for a grim sight.



Figure 9: Erosion on the cement faced upper pontoon



Figure 10: Eroded polystyrene core and exposed base of the pontoon

On studying a crumbled sample (Fig. 11) extracted from the pontoon, the cement layer is embedded with plastic fibre shards (a common aggregate in cement). Swift recovery of such eroding materials is key and we will continue our demand to have this pontoon removed, it won't be an easy task breaking up the pontoon and ferrying its load back to Howth Harbour, but we have many volunteers keen to help. We have repeatedly offered help and man power to Ireland's Eye Ferries for the removal of this pontoon since 2018 but unfortunately to no avail. There is hope still, working together with Clean Coasts, Fingal County Council, Tetrach and Ireland's Eye Ferries we hope to be able to break apart this plastic leaching wreck and take it back to the mainland for disposal.



Figure 11: Illustrates the plastic shard composite material make-up of the cement used in the pontoon.

	Full sacks	Approx. mass
2019	15	100kg
2018	70	500kg

Ends.