

SHOAL

Each image in Shoal includes a trawl sample of plastic collected at various grid reference points across the tsunami debris field of the North Pacific. Some images include debris collected from the tsunami-affected shoreline of Fukushima Prefecture.

Right

33.15N, 151.15E

Included with trawl: tatami mat from the floor of a Japanese home, fishing related plastics; buoys, nylon rope, buckets, fish trays, polystyrene floats, shampoo bottle, caps, balloon & holder, petrol container.

Facing page, left

30.27N, 163.28E

Included with trawl: three pieces of plastic bag.

Facing page, right

29.10N, 169.52

Included with trawl: painted board fragments from tsunami wave in front of Mrs Kazuko's house, Fukushima Prefecture.



Shoal – a group of fish swimming together, a large number of people, or things – is the name of over 25 RPS and TPA Environmental Bursary 2012 winner Mandy Barker’s project on the epic amount of plastic thrown into the North Pacific as a result of the Japanese tsunami of 2011. Here, she discusses the journey she took to document the debris



Recipient of the over 25 RPS and TPA Environmental Bursary 2012, Mandy Barker proposed to document the impact of the record amount of plastic thrown into the sea by the Japanese [Tohoku] tsunami of 11 March 2011. Joining the Japanese Tsunami Debris Field Expedition of June 2012, she travelled aboard a yacht from Japan to Hawaii for a month last year.

“Each image is based on a collection of marine plastic debris that forms a shoal – the arrangements based on various species of fish that the plastic ultimately affects”, says Mandy. “Objects have been duplicated to represent both the scale of lives lost, and the amount of plastic that entered the ocean.

“Staring down into the ocean, and seeing unmistakable objects pass by, such as a boot laced to the top, a pair of children’s shoes, buckets, cups, caps, a felt-tipped marker, a syringe, or a coat hanger, was a constant reminder of lives lost. Unidentified plastic particles seem to represent people, and similarities are seen in the plastics collected: a piece of bag like a face, polystyrene like bone, a

twisted bottleneck like a flower, a plastic tag like a butterfly. A reminder of life from retrieved pieces of plastic, not only from what objects they have been, and where they have come from but, more importantly, to whom they once belonged.

“Because of this, *Shoal* represents both a visual awareness of plastic pollution essential for scientific research, and a memorial of a tragic event.”

Mandy graduated with a MA in Photography from De Montfort University, Leicester, in 2011. Her previous project *Soup*, looked at plastic debris suspended in the sea, with particular reference to the mass accumulation that exists in an area of the North Pacific Ocean known as The Garbage Patch.

Taking items of plastic thrown up on beaches worldwide, some small and some large, into the studio, and photographing them against a black velvet backdrop, then producing composite images of her results, Mandy aimed to provoke a contradictory reaction in the viewer, of aesthetic pleasure and intellectual disturbance. The project achieved a lot

of success, being awarded First Runner Up in Blurb’s *Photography Book Now 2011* competition, and published worldwide, including in *Time Magazine*, *The Financial Times*, and *Source Magazine*, and nominated for the fourth cycle of the Prix Pictet 2012.

Shoal takes the project further. “Being able to record plastic at source and from such a unique location, despite the devastating circumstances and emotional impact of natural disaster, has provided a unique opportunity for research”, she says. “By knowing the specific date when the plastic entered the sea, we can assess its rate of decomposition over time, and thereby gain a more accurate estimate of its effect on the environment.”

The Japanese Tsunami Debris Field Expedition of June 2012 that Mandy joined set out on its 3800 mile journey across the Pacific Ocean from Japan to Hawaii on Sunday 10 June 2012, 10 days late, due to unforeseen mechanical repairs to 72ft yacht *The Sea Dragon*, and Typhoon Mawar.

“The unexpected delay in our departure gave us vital time to visit Fukushima



Above 1. 33.15N, 151.15E Included with trawl: rescue worker's helmet, glove, shoe sole, suitcase handle, flip flop, coat hanger, bath brush, ball, kitchen cleaning containers, drinks crate, flower, tube with the words 'Tears in Cream'.

Prefecture, the epicentre of the Tohoku earthquake and tsunami, to help residents remove debris from their homes and visit beaches there", says Mandy. "Witnessing endless mountains of unrecovered personal possessions, an unspeakable but essential experience, put into perspective the scale of human loss and the uncertainty of what lay in our journey ahead.

"The purpose of the expedition was for scientists to further research the lifecycle of plastics, to discover what marine life colonised the debris, and what the long term ecological impact will be. It was my intention to photograph all the plastic debris generated from the tsunami that was collected.

"A team of 12, comprising scientists, journalists, environmentalists, and waste man-

agement experts, representing eight countries, we were linked by a common desire to learn more about plastic pollution.

"The early stages of the journey were rough, as the effect of Typhoon Mawar was felt, with big storms and heavy rain causing minor damage to the boat. Half the crew was stricken with nausea, and no one escaped the bruising from being thrown about.

"Things settled down after a week at sea, and everyone got into the routine of three hour watches, 24 hours a day.

"We began our research by deploying the high speed trawl, which is a net designed to skim the sea surface at a speed of 8 knots. Among flying fish, squid, jellyfish, nudibranch and paper nautilus, we found myriad multicoloured micro plastic particles,

indefinable as to product or origin, which made up the bulk of our samples.

"The crew became adept at scooping debris from the bow, netting all types of objects. We all took part in timed observations. These involved two people staring off the beam, recording everything that went by with a clipboard and stopwatch.

"On one occasion, I noticed a large truck tyre float by. I shouted out, and the captain instructed the crew to, 'Roll the jib and centre the main'. As we attempted to turn and go back for the tyre, I kept my eyes firmly fixed on it, although now it was 400m away.

"10° to port and 50m off the bow, the algae covered tyre was hauled aboard. Some 30 small crabs dropped from it; a bristle worm and a dozen gooseneck barnacles were entwined on the still inflated tyre, near to the embossed words, Made in Japan.

"Further tsunami debris we found included an unmistakable piece of traditional tatami mat from the floor of a Japanese home, and a miniature Japanese fishing boat with its name painted on the side which, when translated, spelt, 'bright', 'door', and 'ship'.

"By the end of our trip, my photographs of the objects had been broadcast on television across Japan, in search of their owners.

"The plastic we found ranged from nurdles [pre-production plastic pellets] to identifiable parts of whole objects, such as bottle caps, jars, toy wheels, buoys, and containers. Our visual observations of large debris were equally disturbing, with a piece of floating plastic being spotted every 3.6 minutes on average, and in the most concentrated areas every 53 seconds.

"The diversity of life we observed on floating plastic was remarkable: every item contained varieties of sea life, serving as floating rock pools, and providing habitat for species normally found in coastal environments. This highlights the potential of plastic pollution to translocate exotic species across oceans, thus affecting the ecosystems of other lands.

"The photographs taken during this trip will serve as a visual record of plastic collected from the tsunami debris field, complementing scientific research. Over time, the tsunami debris will become indistinguishable from the background of other plastic debris in the North Pacific, noticeable only as an increase in future trawls.

"The only response to a natural disaster is to care for and respect the victims. This tsunami however, unlike any other in history, has also left its mark on distant shores, and it's mostly in the form of plastic.

"Seeing plastic pollution at source in the North Pacific deeply affected all the crew. An ocean crossed, we achieved a stronger grasp of the implications of plastic pollution.

"Our scientific research objectives reached, the results of our expedition will go to help convince politicians and others as to the changes necessary to reduce and manage our consumption of plastic."

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• Mandy is looking for a venue to exhibit *Shoal*. Please contact her if you can help.