




Seas, Shoots & Shores,

A STEAM project that uses photography, science and creative learning to explore issues around marine conservation and plastics pollution.

A photograph of an offshore wind farm. Several white wind turbines with yellow bases are visible against a clear blue sky. In the foreground, a small white boat is on the dark blue sea. The text is overlaid on a semi-transparent light blue rectangle in the upper half of the image.

Six local schools were invited to take part in this initiative. With support from STEM Sussex, the Marine Conservation Society, and a team of experienced photography facilitators and scientists. The main focus was an investigation into the impact of litter, over fishing and pollution on our coastal and marine ecology. The project was funded by Rampion.

Three classes of year 8 who were timetabled at the same time were chosen to be part of this project. Each class looked at some of features of the area they live in. They were not aware of the value of the rare kelp forest that is just off the Worthing coast.

Why we should help our kelp!

Some key facts about Sussex kelp...



A 1987 Worthing Borough Council report showed the historic kelp beds covered 177 km², with 10 km² described as 'very dense'

Kelp beds support many species of commercial fish such as plaice and cod

Kelp supports many of the species sea birds feed on

Per acre, kelp forests can take up to 20x more CO₂ from the atmosphere than land-based forests

In-shore kelp beds make a great natural sea defence



Divers in the 1980s recorded Kelp as 'common' or 'abundant' in over 50% of dive sites from Selsey to Eastbourne

Encrusting bryozoans and hydroids make kelp their home

Kelp beds are spawning grounds for many species of fish ...as well as important nursery grounds for juvenile fish

By the late 2010s only small remnants of kelp remain, covering an area of just 6.28 km²... a 96.4% decline since 1987!

Kelp is used for shelter and feeding grounds for creatures such as seals and dolphins

Forest Kelp (*Laminaria hyperborea*)

...as well as important nursery grounds for juvenile fish

Sugar Kelp (*Saccharina latissima*)

Kelp bed ecosystems support larger predatory fishes - such as cat sharks

Kelp beds support crustaceans such as commercially important lobster

Oar Weed (*Laminaria digitata*)

Seaweeds can grow more than 30x faster than land based plants

Kelp holdfasts (the bit that attaches to the reef) provide food for flatfish, sea bass & cod

By altering light levels, sedimentation rates and water flow - kelps are true "ecosystem engineers"



Sussex
Wildlife Trust

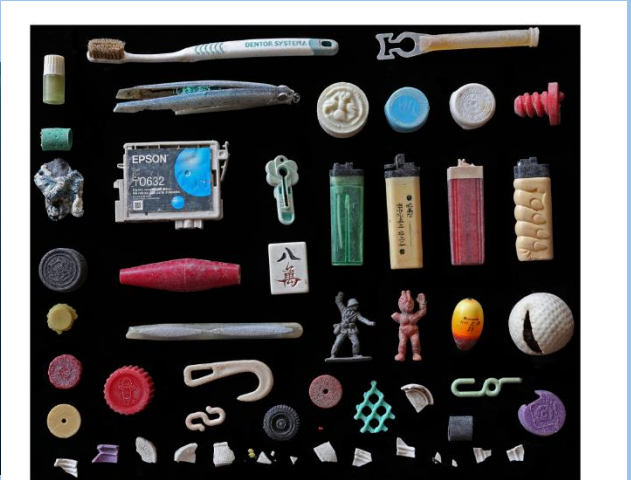
Facts and figures: Williams & Davies 2019, Report by Worthing Borough Council, 1987, Testimony from local fishers, Seasearch dives.

Students explored different factors that effect our marine ecology and presented this as mind maps. The pupils had looked at these issues in a variety of subjects.

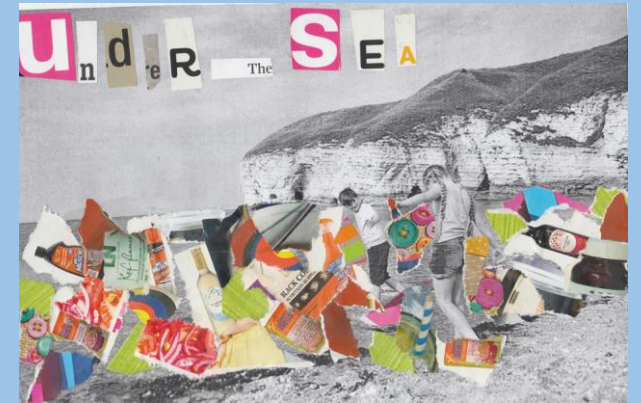
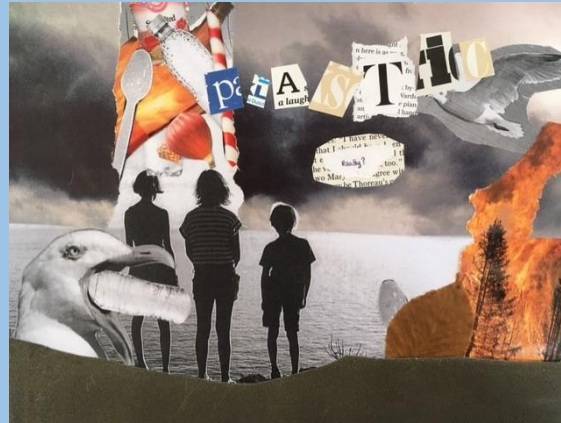
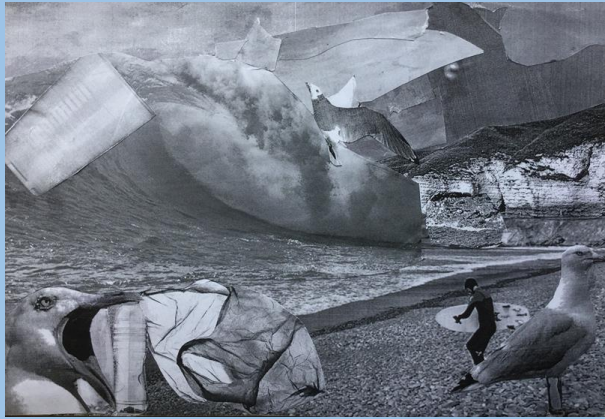
Every year 5.5 billion UK plastic bottles aren't recycled (Greenpeace), each minute one truckload of plastic/litter enters the ocean (MCS). Human behaviour has a devastating impact on marine life. This project encouraged local action by educating young people and challenging them to change the behaviours of their peers, parents and town.



Before starting the project with our students, Photoworks, STEM Sussex and representatives from Marine conservation invited staff to a programme of five twilight CPD sessions. At these sessions, we explored the project themes supported by art/science professionals and supported our co-planning programmes of activity for our selected group(s) of students. This included setting up opportunities to bring art/science professionals into our school. Annis Joplin, film maker, passed on some excellent PowerPoints used in the sessions that introduced us to influential and contemporary photographers who focus on environmental issues. These were shared with our yr 8 classes and resulted in some excellent discussions helping pupils to develop their critical thinking skills. From this project we were able to build up resources that could also be used in introducing GCSE Photography in the following year.



In the next session with our students and before they went to the beach they explored photo collage techniques to express ideas about environmental issues.



Sampling on the Beach



Having the seafront so close to the school we were able to walk the classes down to the beach to do some sampling, looking at how much plastic and natural forms we could find on a section of the beach. The science department helped to plan this activity and we were able to use their equipment.

Year 8 please read these instructions carefully.

Many species and man-made products can be found on our beaches.

These items and species can change as you move further away from the shore

We can use sampling techniques to record and analyse the species and items found

Sampling using quadrats.

You have 11 quadrats per art class. You will need to divide into groups to have one per group and will be given a number.

When you get down to the beach your teacher will tell you where you should set down your quadrat.

You should take a close up photo to record what you see inside the quadrat(include the quadrat in your photo)

Count how many – shells, pieces of seaweed, list any other sea life you find. Record this on your chart. You could take some close up photos of these

Collect in your plastic bag any man- made items that you find

Take some photographs to record you doing this work



Further instructions of what to do on the beach

Other photographs to take

You will need to take some other photographs to show a view of the whole beach showing the sea, pebbles, sky, man made structures such as the pier. Distance shots.

Close up shots at the top of the beach and along the wooden groynes.

Take some individual photos of interesting shells, pebbles, plant life.

Any activity on the beach e.g fishing, dog walking.

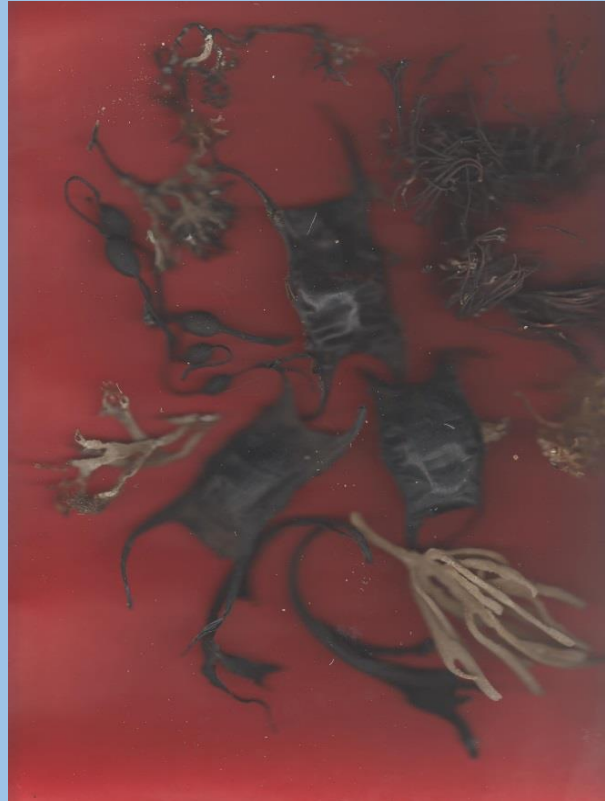
Each group have been given a slab of clay you need to take an impression of what is in your quadrant. Some of you will be creating other artefacts from textile materials and some of you from clay. These artefacts maybe used as prop/ backdrops for some studio photography.



On return to school the pupils collated their results from the sampling. It was good to see that actually there was very little visible plastic waste found on the beach. There was a considerable amount of seaweed of different varieties which was found closer to the waters edge. Other items found were shells, many broken, cuttlefish, mermaids purses, parts of crabs some fish bones. Pupils then had the opportunity to create artworks using three different mediums, photography, cyanotypes, ceramics, textile weaving all based on their visit to the beach.



SCANOGRAPHY



Scanner photography, is the process of capturing digitised images of objects for the purpose of creating printable art using a flatbed photo scanner. Here you can see we used objects which are typically found on Worthing beach arranged to create a patterns on different coloured backgrounds
Selected materials from the beach - mermaids purses and different types of seaweed



PHOTOGRAPHY

The photographer Elizabeth Doak demonstrated to pupils how to make a cyanotype print using the objects they collected from the beach. Pupils developed these further by adding text.





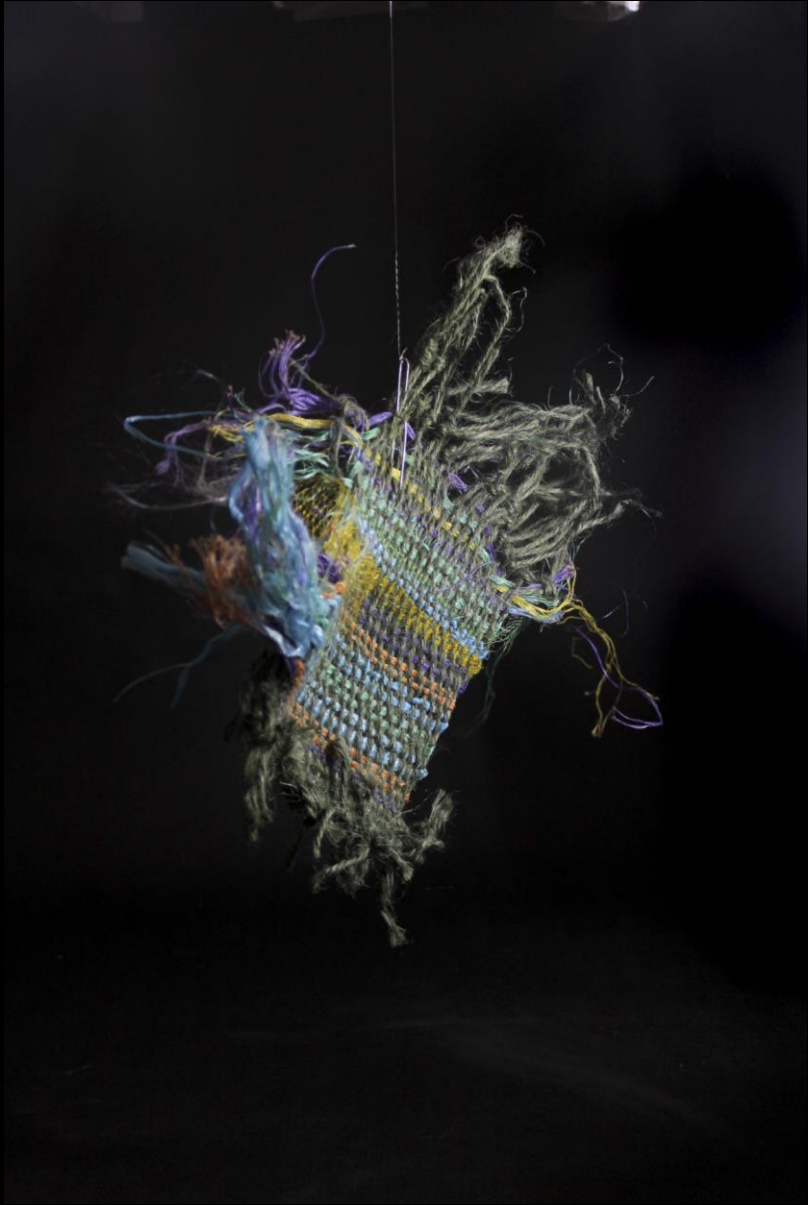
TEXTILES

Pupils were shown examples of textile work made from found and recycled materials. Pupils collected items from the beach including discarded synthetic rope. The intention was for them to use this to weave from.

Unfortunately not enough could be found to do this but some was sourced from a beachcomber who lives on the west coast of Scotland. It was surprising to see the range of colours in the bundle.

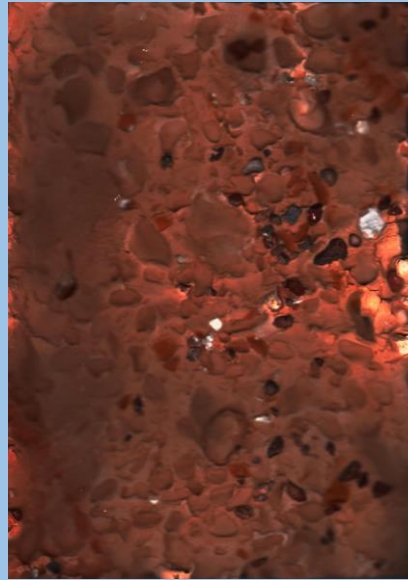
The pupils made small looms from recycled cardboard before weaving using the scavenged materials.

Once the weavings were complete Elizabeth Doak, visiting photographer, helped the students to photograph them. The photographs strangely made the weavings look like plankton floating in the sea.

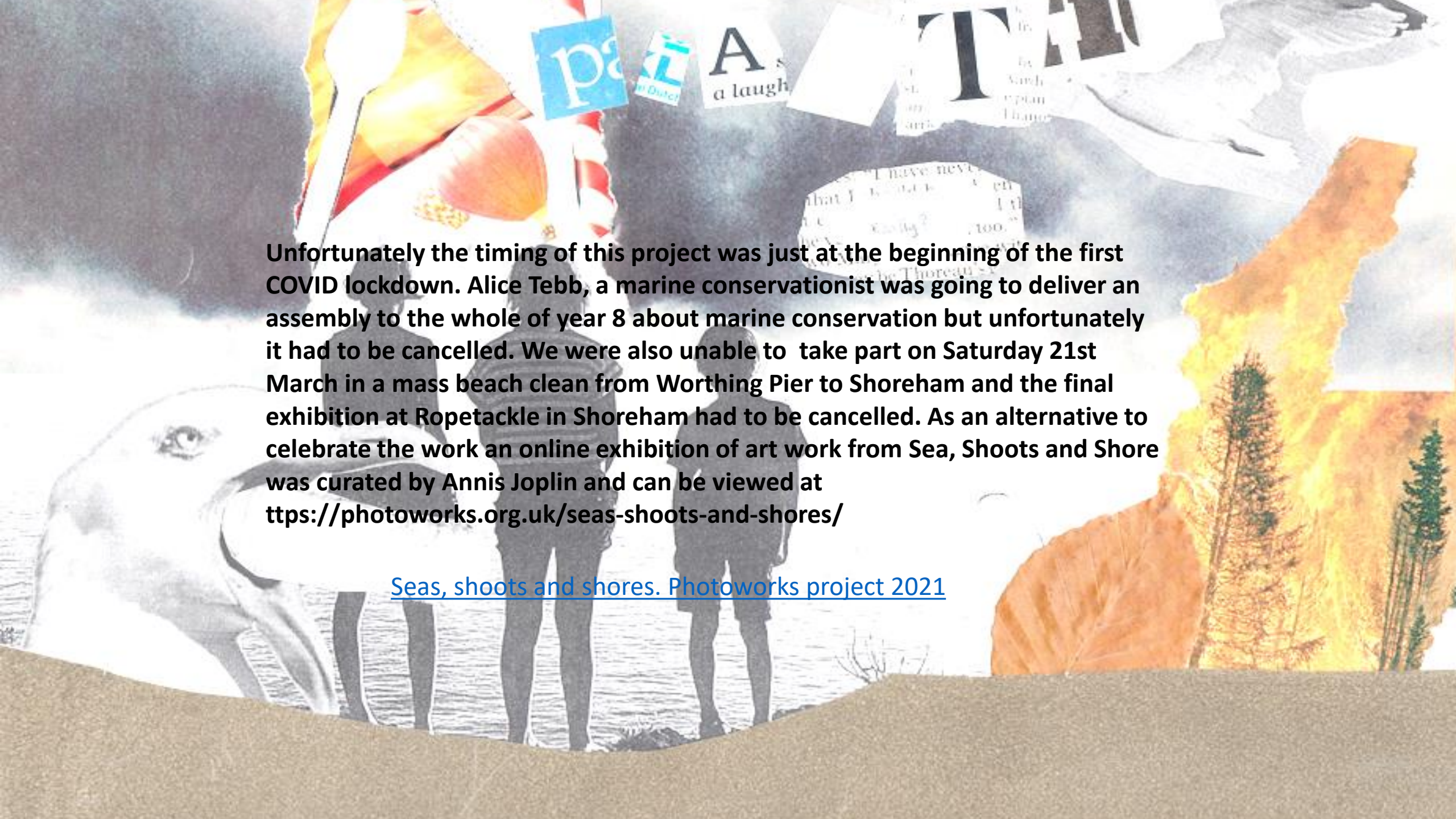


CERAMICS

Pupils were given the opportunity to use ceramics. They made moulds from objects found on the beach and then used them to press mould a number of objects. These along with the clay impressions they made on the beach were biscuit fired. After firing the tiles and objects they were coloured and glazed with a mixture of stoneware and underglaze colours. The objects were arranged on top of the tiles and became fused to them during the final glaze firing. The intention is to mount these onto marine ply which will then be attached to a wall between the art and science block.







Unfortunately the timing of this project was just at the beginning of the first COVID lockdown. Alice Tebb, a marine conservationist was going to deliver an assembly to the whole of year 8 about marine conservation but unfortunately it had to be cancelled. We were also unable to take part on Saturday 21st March in a mass beach clean from Worthing Pier to Shoreham and the final exhibition at Ropetackle in Shoreham had to be cancelled. As an alternative to celebrate the work an online exhibition of art work from Sea, Shoots and Shore was curated by Annis Joplin and can be viewed at <https://photoworks.org.uk/seas-shoots-and-shores/>

[Seas, shoots and shores. Photoworks project 2021](https://photoworks.org.uk/seas-shoots-and-shores/)