

Pyroplastics and Environmental Art

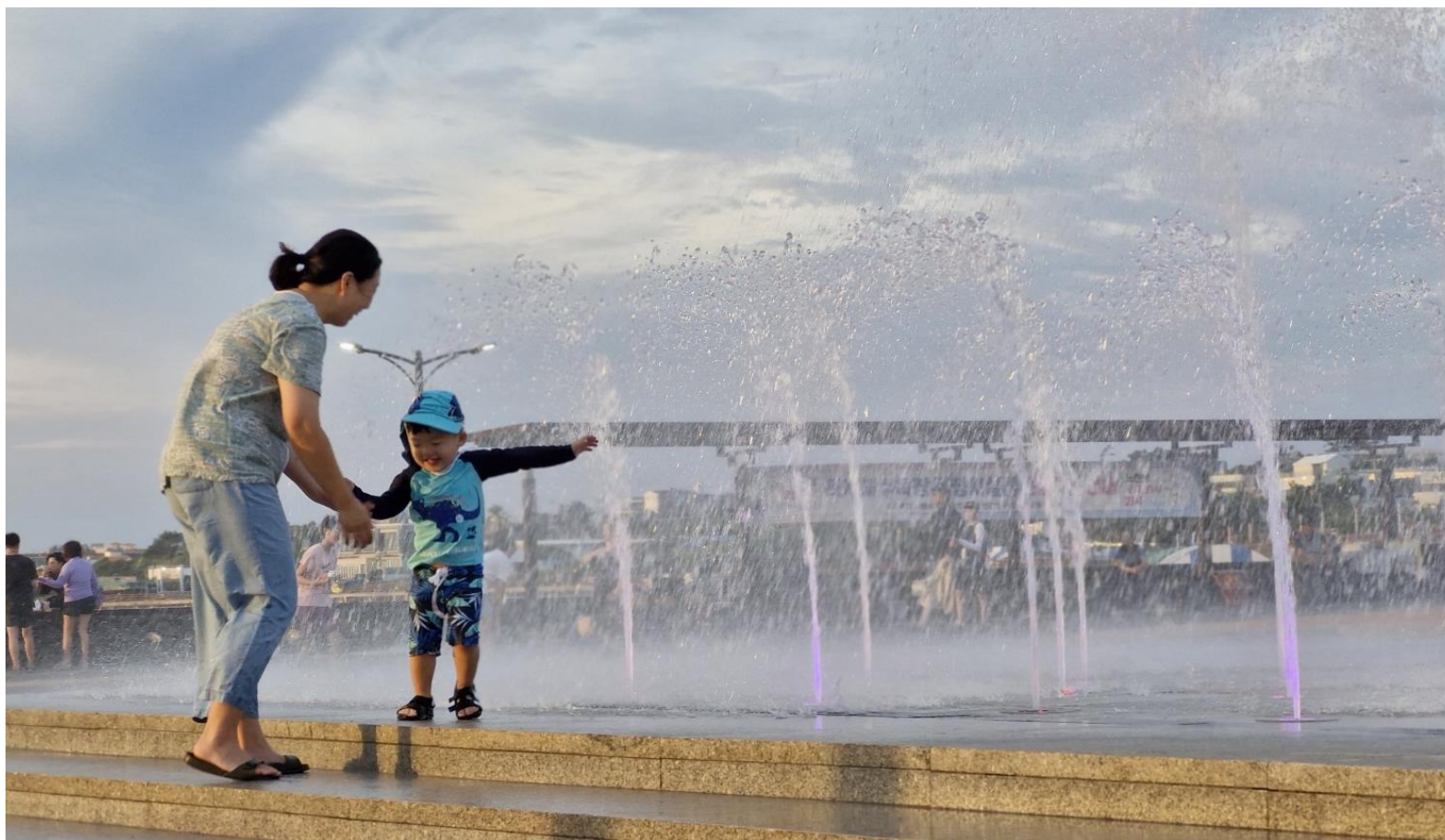
Badasseugi Representative Kim Ji-hwan



Problem Current Status and Causes



I moved to Jeju Island in the summer of 2013 with big dreams



Recalling the natural environment, I expected leisure time with my family



However, Jeju is full of trash



The beach where I expected romance is also full of trash that washes up



2014, when I first encountered Jeju' s marine waste



Started junk art as a hobby, marine waste becomes the material



Gradually became interested in environmental issues through exchanges with environmental experts



Monitoring marine waste with the Ministry of Oceans and Fisheries for several years



Reconfirmed the seriousness of Jeju' s marine environment with my own eyes



Jeju' s marine waste is generated about 20,000 tons annually



South Korea' s marine waste is generated about 180,000 tons annually



The amount of marine waste worldwide is about 13 million tons annually



Plastic makes up the majority of marine waste



Decomposed microplastics pose a serious threat to the marine environment Problem



If exposed to UV rays for a long time, it can turn into porridge



It is difficult to collect because it does not always float on the sea



Microplastics found in mother's placenta, newborn's feces, and baby bottles... Deeply penetrating into our daily lives



Recently discovered pyroplastics are linked to more serious microplastic problems



Highly toxic and difficult to distinguish, so investigation and collection are in place



Looking at the etymology, pyro comes from the Greek word 'πυρ', meaning 'fire' and 'heat'



Pyroplastics are lumps of plastic that have changed into something very similar to pebbles and rocks through thermal decomposition and weathering



There are three to four main causes of pyroplastics:



First, illegal waste incineration on the coast



Second, plastic lumps that melted from factory, household, and natural fires were washed up on the coast



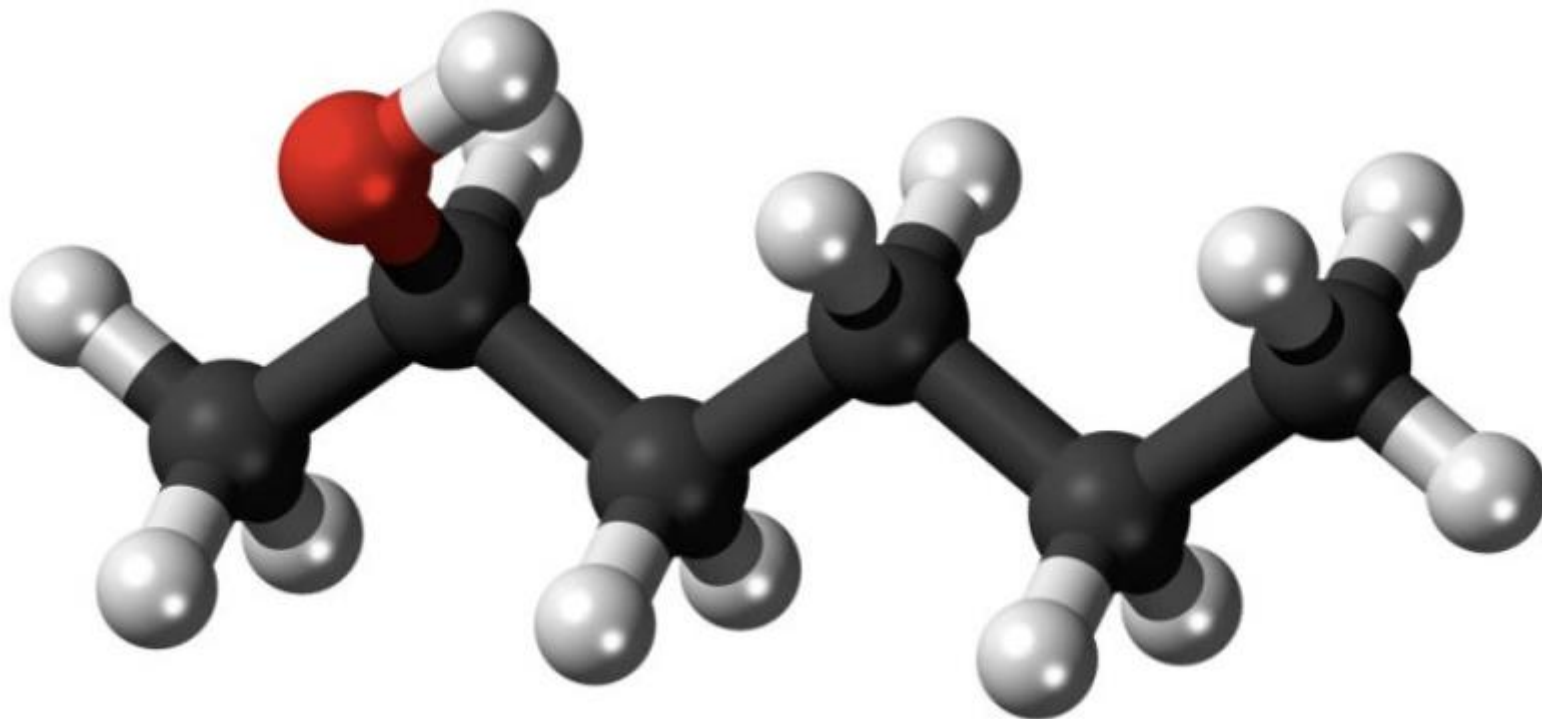
Third, plastics exposed to high temperatures during industrial waste disposal deformed and then poorly managed



Fourth, plastics that have softened due to exposure to heat such as ultraviolet rays in the summer harden into the cracks of rocks



The problem is that they change into highly toxic microplastics. The surface area increases, and the concentration of organic pollutants is 100 times higher Accumulation



When plastic melts, chemical additive toxicity leaks into the marine environment



It could be like releasing high-concentration pollutants such as lead, chromium, bisphenol A, and polyvinyl chloride back into the sea



The problem is difficult to distinguish and difficult to remove because it gets stuck between rocks

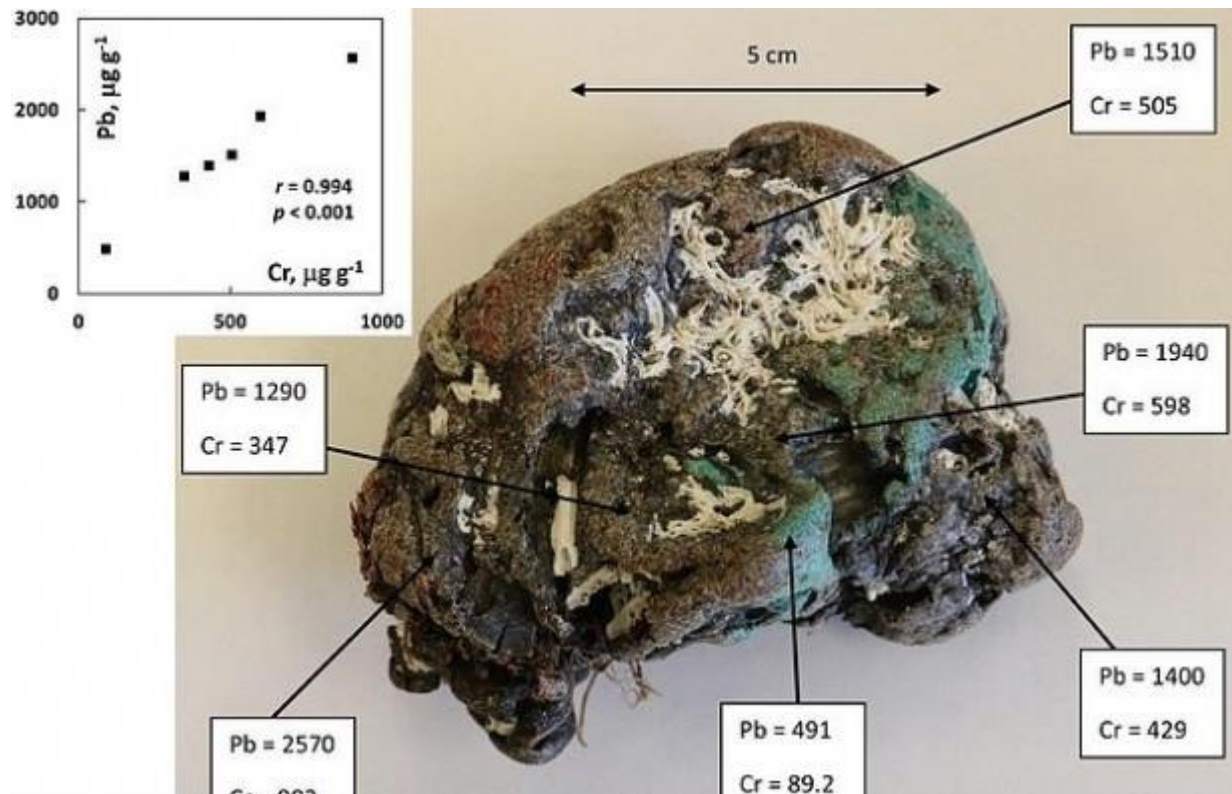
Overseas research cases



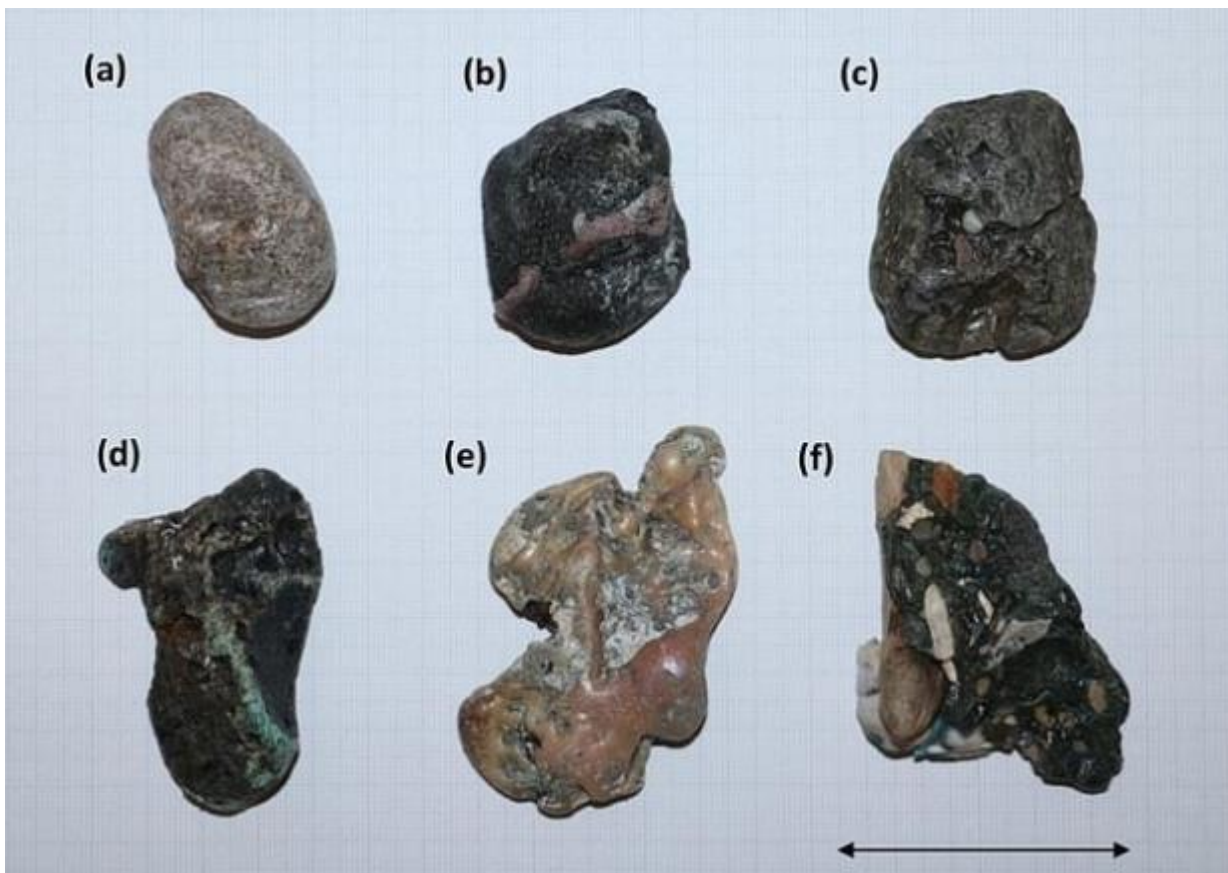
**Dr. Andrew Turner of the University of Plymouth, UK,
first officially reported to the academic world in 2019**



The University of Plymouth is a public university specializing in sustainable research. The second carbon-neutral university in the UK



Dr. Andrew Turner's research team published 'Marine pollution caused by pyroplastics' in an international academic journal



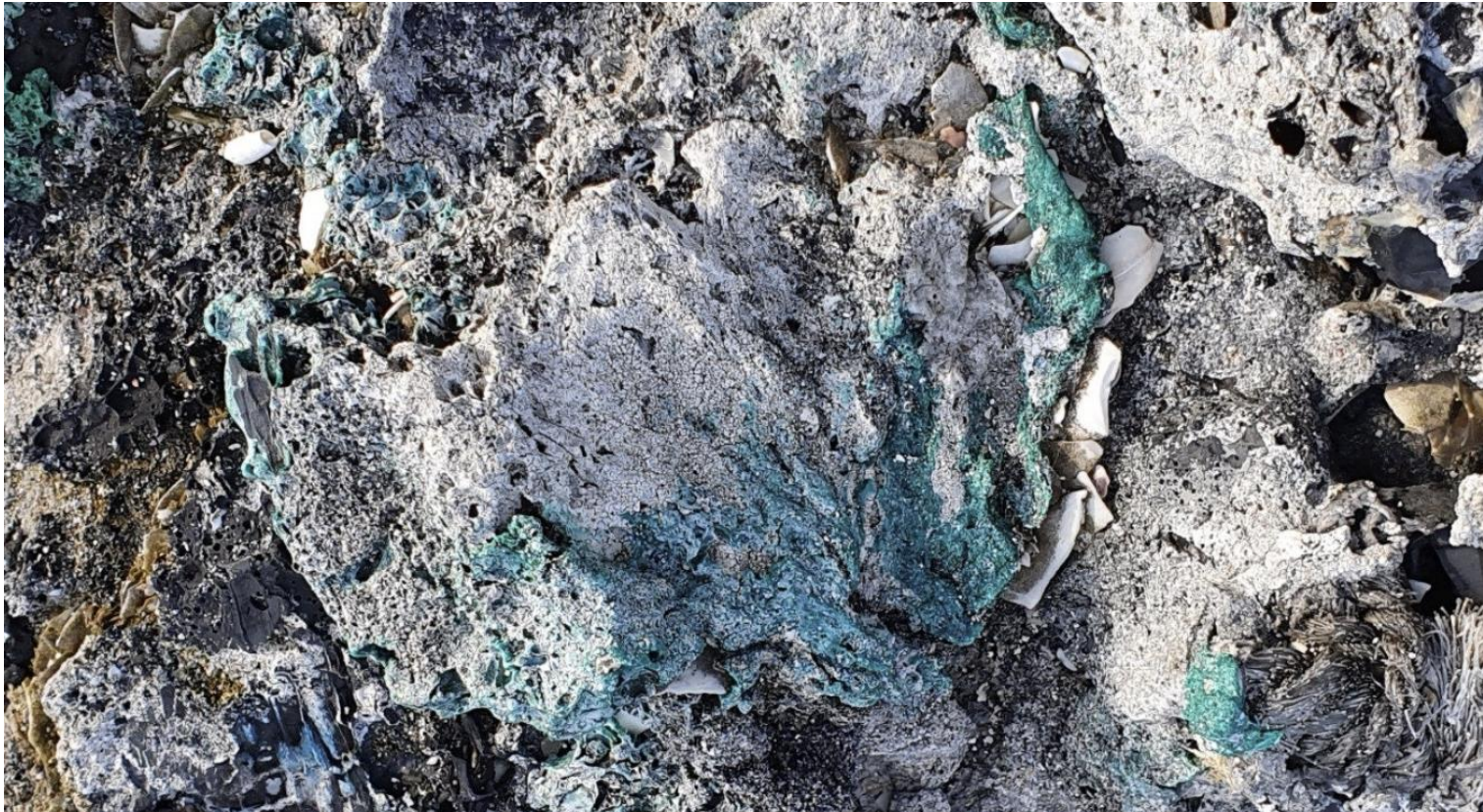
It is understood that pyroplastics began about 80 years ago



Concerns are raised that they may be highly toxic because they are mixed with currently banned chemicals



Interestingly, pyroplastics on British beaches are very similar in color and shape to actual pebbles



On the other hand, Jeju Island has many rough basalt rocks, and the shape of pyroplastics is also similar to basalt



**Australia, 2019–2020 Large-scale wildfires pointed out.
Unsafely combusted plastics threaten the marine
environment**



The US also identified the impact of pyroplastics on the marine environment after the 2020 California wildfires

Jeju Badasseugi Case



Pyroplastics were first confirmed in 2017, about 3–4 years after the start of environmental education in 2014



The shape and color were so similar to ordinary stones that it was difficult to distinguish



At first, it was just something we picked up when collecting marine debris



However, we realized the seriousness of the problem every time we found it



There was no information about pyroplastics even when we looked around



The focus on the pyroplastics issue began around 2000



Used as an experiential material during class time, but felt limited



Started informing through exhibitions, blogs, newspaper and broadcast interviews, and environmental education from 2021



You are here: [News](#) / [Pyroplastics: a new type of plastic pollution](#)

Information gradually accumulated, and other countries were also showing interest in pyroplastics



Eventually, we were convinced that it was a marine environment problem not only in Jeju but also around the world



**Participated in the 2023 Jeju Plus International Environmental Forum.
As a side event Pyroplastic exhibition in progress**



Sara Castro-Hallgren, Development Director of the UN Center for Sustainable Development, who attended the forum, purchased the work



It is encouraging that the head of the UN agency is interested in the pyroplastic issue



Exhibitions to promote pyroplastics are being held consistently



About 10 exhibitions, including the Jeju Provincial Office Plastic Zero Exhibition and the Jeju Haenyeo Museum Exhibition



고를말 이수다 ['파이로 플라스틱' 제주 해안을 잠식하다] KBS제주
221103방송

Continued work to inform the public about the content through interviews with local newspapers and broadcasts



Continued pyroplastic removal activities through the Ocean Writing Ocean Cleanup Activity Program, approximately 20 times



**All participants showed shocking reactions.
Empathized with the marine waste problem,
especially the plastic problem**



The most effective fundamental solution is to reduce the use of plastics and eliminate the cause



It is necessary to crack down on illegal dumping of waste and illegal incineration of waste along the coast, including the main cause, fishing waste



Investigation and research at the level of related organizations and government ministries are also necessary. In addition, we must find cause analysis and solutions in solidarity with the world



I hope that we will solve the pyroplastic problem through a professional and scientific approach in the future Expected



THANK YOU