

Knalplastic!

**Lek jutters
VHL**

"How fireworks shows contribute to the plastic soup"



Knalplastic: How Firework Shows Contribute to the Plastic Soup

A report by Lekjutters Vijheerenlanden

Author: Maarten Kerkhof June 2022



English translation of the original report in Dutch by ChatGPT April 2023

Lekjutters Vijheerenlanden is partner in the [Schone Rivieren Alliantie](#) and endorses the [Plastic Avengers Manifest](#)



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Cover photo: vuurwerkfestival Scheveningen

source: <https://www.travelaroundwithme.com/vuurwerkfestival-scheveningen/>

Preface

In late 2019, we launched the campaign Operation #Knetterbal, in which we urged people to take pictures of plastic debris from knetterballen, or plastic fireworks balls, littering the streets. Our plan was to take the collected data to court to find out whether it was legally allowed to sell such disposable plastic.

However, we never got the chance to take legal action because within a short period of time, so many photos were taken that major retailers were shocked and began to remove this type of fireworks from their shelves after we contacted them. Not long after, these companies even signed the Knalplastic Covenant, promising not to sell any more fireworks with plastic in the future. The major fireworks importers also signed it. Since 2020, there has been almost no "children's fireworks" with plastic on the shelves. And not on the streets either. It is now mostly made of paper and cardboard.

The fact that we were unable to go to court and therefore could not achieve a total ban on plastic in fireworks is actually the fault of people like Maarten. He was one of the major suppliers of data. In other projects that we have done in this way, Maarten has been invaluable. Maarten often goes even further than the Zwerfinator in his research. And now he proves that our campaign against plastic in fireworks was successful, but far from over.

The fight against plastic pollution is tough. The fight against selling and setting off fireworks is also tough. The chance that private use of fireworks will be banned in the short term is extremely small. What we can do now is to remove the plastic from the fireworks, so that at least that part of the pollution disappears. Fireworks are hundreds of years older than plastic, so that can easily be done. Little to no active action is taken by the central government, but we can achieve it in other ways.

Maarten's research can play a big role in this, so please read it carefully. Thank you very much for this research, Maarten. We have also learned a lot from it.

Dirk Groot – Zwerfinator



Merijn Tinga – Plastic Soup Surfer



Introduction.

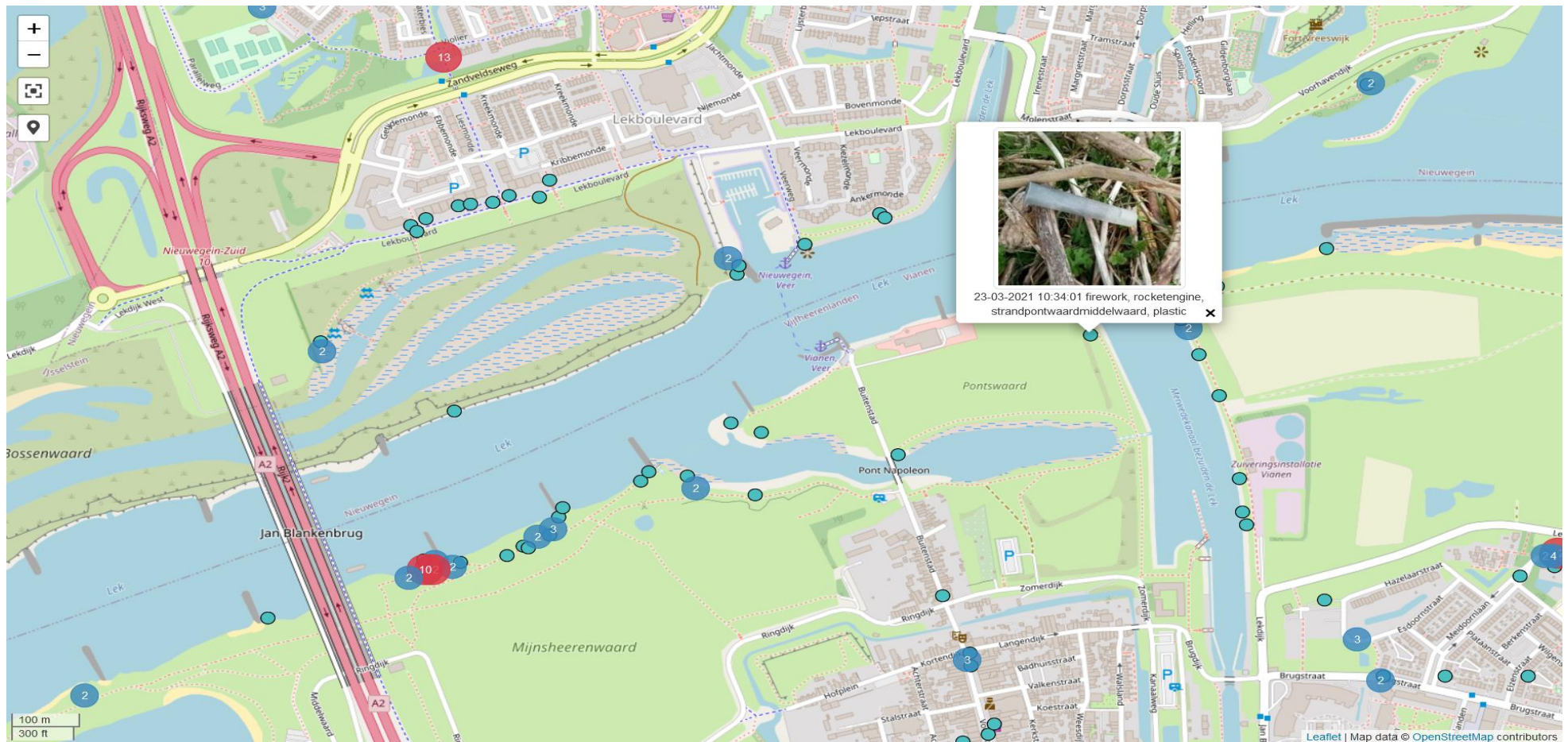
- In the summer of 2019, due to the litter left behind from a festival in the Middelwaard pond in Vianen, I became aware of the problem of plastic pollution. Initially, my attention was focused only on the beverage containers, cookie and candy wrappers, and other packaging left behind by recreational users. These were removed daily during the recreational season from the riverbank on either side of the Lekbrug bridge. Soon, I noticed not only complete packages but also larger and especially smaller, unidentifiable pieces of hard and soft plastic. I wanted to know more about this, and in my search on the internet, I came across various people and organizations dealing with this litter problem. Through the algorithms of Twitter and Facebook, I quickly discovered the "Zwerfinator" and the "Schone Rivieren" organization, both of whom were collecting litter data in their own way to analyze the problem and come up with an approach to tackle the problem at its source.
- When in the fall of 2019, Zwerfinator Dirk Groot announced that he would give a lecture at the litter market of GoedVolk Utrechtse Heuvelrug, I decided to attend. Dirk gave a very informative and impressive presentation of his method, and the subsequent lecture by the Plastic Soup Surfer was equally inspiring. Not long after, I volunteered as a researcher at Schone Rivieren, where I followed a river litter monitoring training in January 2020 and began investigating my own research area along the Boven Merwede twice a year starting in February 2020.
- In preparation for the Schone Rivieren monitoring, I also conducted research on my own initiative along the Lek, where Schone Rivieren was not yet active at that time, and found all kinds of objects on the high waterline, many of which were unrecognizable, but some of which were clearly derived from fireworks.

Like this partially melted, and blackened on the inside, plastic tube in the photo below, which originated from a "flutecake." There are 900 shot flutecakes and even [1200 shots](#) .



Plastic whistle from a "flutecake" washed up on the high waterline along the Lek. Photo by the author.

- I also found some larger hard plastic tubes, open on both sides with a partition and a small hole on one side, of which I had no idea what it was for or where it came from. It wasn't until I participated in the Plastic Avengers' "knetterbal" operation around the turn of the year 2019/2020, the collaboration between Zwerfinator and the Plastic Soup Surfer, that I found out that these plastic tubes were also from fireworks. After the turn of the year, I found them everywhere where fireworks had been set off. I even found one with the cardboard casing, plastic top, and wooden stick of the rocket still attached. It is therefore a solid fuel tank/rocket motor of a rocket.
- Image on the right: Washed-up rocket motor on the high waterline. Image below: Map from the Zwerfafvalkompas showing the locations of the found whistles and rocket motors, with each blue dot representing a found item.



The previous story shows that plastic from fireworks is frequently found in the plastic soup, and in the Netherlands, the problem has been partially solved because some companies have signed the Knalplastic covenant of the Plastic Avengers and no longer sell fireworks containing plastic. Unfortunately, there are still companies that have not signed the covenant, and so far, the national and European politics have failed to come up with regulations to phase out this type of single-use plastic, which is designed and intended to be shoot away outside: **literally disposable plastic**.



A collection of fireworks plastic. From top to bottom: Crackling balls, whistles, a firework rocket top, and a gunpowder holder. Bottom row: Fuse protectors and rocket motors.

The fireworks show at the Titanium Festival.

Since 2016, the recreational area of Middelwaard, located in the floodplains of the Lek river next to a former sand quarry just west of the A2 highway in the municipality of Vijfheerenlanden, has been rented out to festival organizers several times a year. Initially, only the By the Creek festival was held there, but later Wooase was also added, and in 2019 the Titanium Festival was added as well. In 2020 and 2021, there were no festivals due to the COVID-19 pandemic. The recreational area, which has been owned by the municipality since the end of 2018, is located on the northeast side of the quarry and consists of a parking lot, a lawn, a sandy beach, and a quarter of the water. The rest of the area is a nature reserve owned by Utrechts Landschap, where the shore of the quarry is made up of coarse gravel with local vegetation of reeds and an un-vegetated sandy shore on the west side.



Overview of the surroundings of the recreational area. Source: Google Maps.

For the 2022 edition of the Titanium Festival, which was scheduled for May 14th, the festival organizer came up with the idea of concluding the festival with a fireworks show on the water of the lake, in addition to the fireworks that were lit from the stages throughout the day. Therefore, on February 12th, an application was submitted to the Province of Utrecht for permission to ignite the fireworks under the Fireworks Decree, in addition to an application for an event permit and an environmental permit for deviating from the regulations of the zoning plan with the municipality. The RUD Utrecht, on behalf of the province, followed the procedure under section 4.1.2 of the General Administrative Law Act with regard to this request and sought advice from various authorities, among other things.

Adviezen

Bij brief van 3 maart 2022 is conform artikel 3B.3a, lid 5 van het Vuurwerkbesluit een afschrift van de aanvraag toegezonden aan de gemeente en is de burgemeester verzocht een verklaring van geen bedenkingen af te geven conform artikel 3B.3a lid 7, van het Vuurwerkbesluit.

Bij brief van 3 maart 2022 hebben wij conform artikel 3B.3a lid 6a van het Vuurwerkbesluit, de Inspectie Leefomgeving en Transport (ILenT) namens het Ministerie van Infrastructuur en Waterstaat op de hoogte gesteld van het vuurwerkevenement door middel van toezending van de aanvraag en de conceptbeschikking met het verzoek ons hierover te adviseren.

Per e-mail van 3 maart 2022 hebben wij conform artikel 3B.3a, lid 6b van het Vuurwerkbesluit, de Luchtverkeersleiding Nederland op de hoogte gesteld van het vuurwerkevenement met het verzoek ons hierover te adviseren.

Bij brief van 3 maart 2022 hebben wij conform artikel 3B.3a lid 6c van het Vuurwerkbesluit, de Veiligheidsregio Utrecht, Regionale Brandweer op de hoogte gesteld van het vuurwerkevenement door middel van toezending van de aanvraag en de conceptbeschikking met het verzoek ons hierover te adviseren.

Wij kunnen de ontbrandingstoestemming verlenen nadat de burgemeester heeft verklaard daartegen geen bedenkingen te hebben. Wij hebben conform artikel 3B.3a, lid 5 van het vuurwerkbesluit, onverwijld een afschrift van de aanvraag verzonden aan de burgemeester van Gemeente Vijfheerenlanden met het verzoek om binnen twee weken te reageren of een verlenging van de termijn aan te vragen. Binnen de in het Vuurwerkbesluit genoemde termijn heeft de burgemeester geen gebruik gemaakt van de mogelijkheid tot het afgeven van de vvgb. Op grond van artikel 3B.3a, lid 8 van het Vuurwerkbesluit wordt geacht dat de burgemeester dan geen bedenkingen heeft.

Van de Veiligheidsregio Utrecht hebben wij op 11 maart 2022 een positief advies ontvangen. Deze adviezen hebben wij in onze overwegingen en voorschriften meegenomen.

De luchtverkeersleiding Nederland heeft geen gebruik gemaakt van de gelegenheid advies uit te brengen.

De minister heeft geen gebruik gemaakt van de gelegenheid advies uit te brengen.

Image: Requesting advice from the final decision.

Subsequently, the application was evaluated for safety for humans and the environment.

BEOORDELING

Wij hebben de aanvraag beoordeeld op veiligheid voor mens en milieu. De afstand tot het publiek bij het tot ontbranding brengen van vuurwerk speelt een belangrijke rol. De afstanden zijn afhankelijk van het kaliber van het af te steken vuurwerk.

Hierbij is sprake van vuurwerk waarbij in de Regeling bedrijfsmatig tot ontbranding brengen van vuurwerk voorschriften zijn opgenomen welke rechtstreeks werkend zijn voor deze aanvraag. Uit de aanvraag is gebleken, dat aan deze voorschriften wordt voldaan.

OVERWEGINGEN

Uit de aangeleverde gegevens blijkt dat de afsteeklocatie niet gelegen is in een Natura 2000- of stiltegebied. Ook hebben wij getoetst aan de Habitatrichtlijn en de vogelrichtlijn. Beide zijn niet van toepassing op de afsteeklocatie. De afsteeklocatie ligt op ongeveer 4700 mtr. vanaf het Habitatrichtlijngebied Uiterwaarden Lek. De afsteeklocatie ligt niet in de nabijheid van een vogelrichtlijngebied.

Op de schietlijst ontbreken nog enkele gegevens m.b.t. de vuurwerkartikelen zoals de fabrikant. De aanvrager dient er voor te zorgen dat de ontbrekende gegevens tijdig en minimaal 4 dagen voor aanvang van de vuurwerkontbranding bij ons aangeleverd zijn. Dit hebben wij vastgelegd in voorschrift 1.2

In de aanvraag is aangegeven dat op 12 mei 2022 mei vanaf ongeveer 10.00 uur wordt begonnen met het prepareren van de effecten en het plaatsen in de effecthouders. Zoals gesteld in het Vuurwerkbesluit is het niet toegestaan om vuurwerk langer dan 16 uur voorafgaand aan het tot ontbranding brengen van het vuurwerk, buiten een opslagrichting voor handen te hebben. Het Vuurwerkbesluit geeft het bevoegd gezag wel de mogelijkheid om een andere tijdsduur vast te stellen. Gezien het tijdstip van prepareren en opbouw van het vuurwerk en de begintijd van de ontbranding van het vuurwerk wordt een tijdsduur van 50 uur vastgesteld voor het voorhanden mogen hebben van vuurwerk op de locatie. Er mag niet meer vuurwerk aanwezig zijn, dan welke tot ontbranding wordt gebracht. Dit hebben wij vastgelegd in voorschrift 1.3

Image: Assessment from the final decision.

The above assessment does not indicate that the application was evaluated for the effects of combustion products and other released materials under the Water Act and the Soil Decree. The permit holder is informed that other laws and regulations may also apply.

Overige wetgeving

Wij wijzen de vergunninghoudster erop dat er nog andere (wettelijke) bepalingen van kracht kunnen zijn, op grond waarvan mogelijk vergunningen, toestemmingen of ontheffingen benodigd zijn. Er kan bijvoorbeeld een ontheffing of toestemming nodig zijn in het kader van de transportregelgeving, zoals een ontheffing voor het afwijken van een plaatselijke route voor gevaarlijke stoffen, of een evenementenvergunning in het kader van de APV. Het verlenen van deze ontbrandingstoestemming betekent niet dat ook ontheffing op enig ander wettelijk voorschrift wordt verleend.



Image: The final show of the Titanium Festival featured fireworks from the water on the left and light effects from the main stage on the right, as shown on the Titanium Festival's Facebook page.

The aftermath of the fireworks display.

In the early morning of May 15, the shore of the lake was inspected by the "Lekjutters" for any cups and bottles that may have ended up in the water. This was done after an earlier experience following the Wooase Festival in 2019, when the entire shoreline was littered with plastic cups and water bottles. This morning, no plastic cups were found and only two water bottles were recovered. To our shock, the west bank of the lake was littered with a huge number of rocket motors from the fireworks and plastic caps that apparently originated from the fireworks as well ..

In this [video](#), you can see the amount of plastic waste that a ten-minute fireworks display produces.

Image below: screenshot video-recording.



Image: Map showing the fireworks launch site (blue), wind direction, and the location of the washed-up debris (yellow circle).

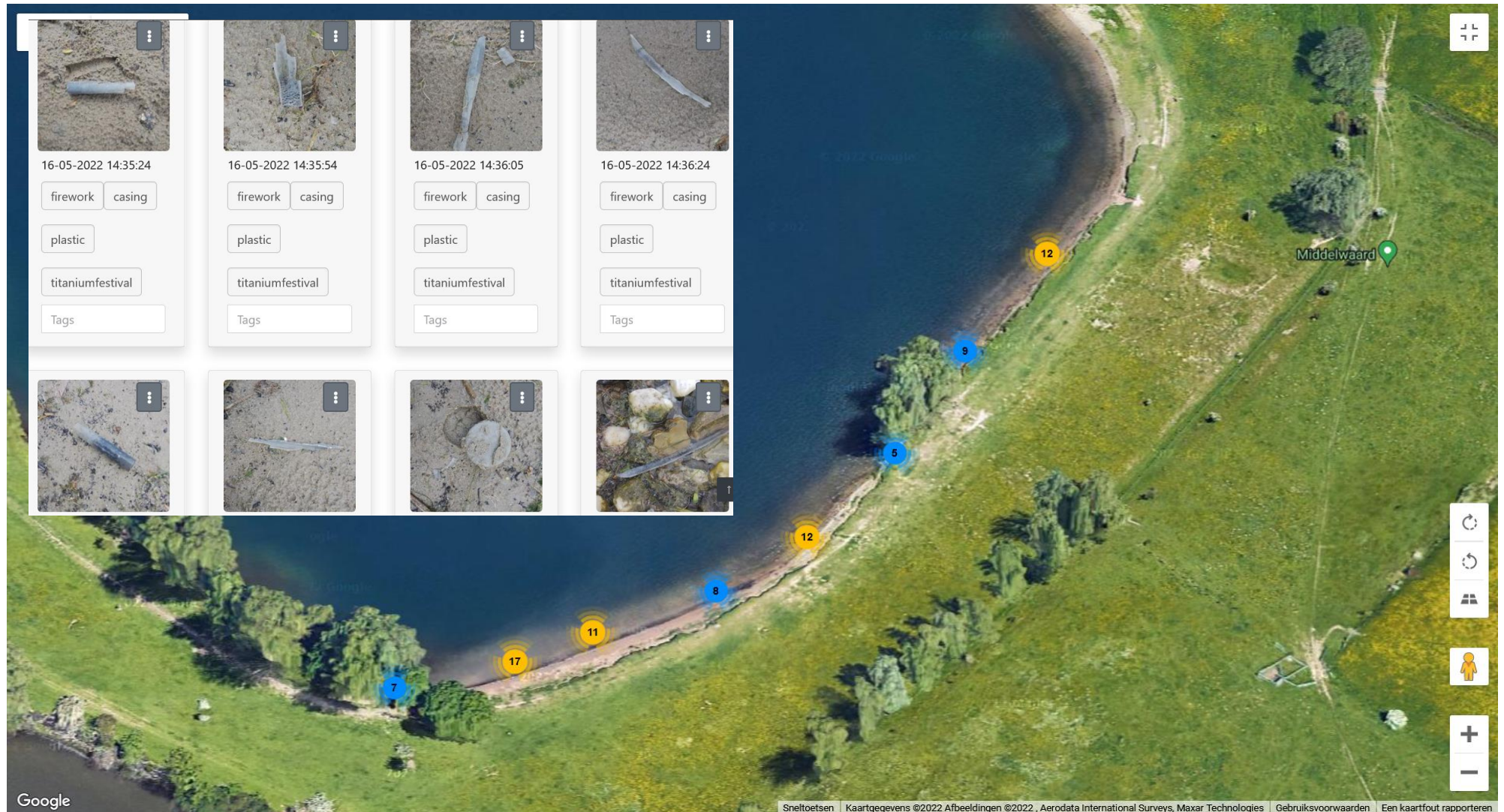
At the beginning of Sunday afternoon, May 15th, I informed the management of the Titanium festival about this pollution by showing them the video made that morning.

The owner of Dance 2 Eden, one of the organizing companies, immediately instructed the specialized event cleaning company that he had hired to also clean up that location.

That same afternoon, the cleaning company started working on it, using a grass rake to collect and remove the plastic debris.

On Monday afternoon, we went to check if the festival organization had cleaned up the shore of the lake. At first glance, it did appear to be clean, but a walk along the waterline revealed 81 larger pieces of debris that were registered using the litter-tracking app Litterati.

There were also a lot of very small pieces of plastic that were impractical to pick up manually, let alone photograph them with the Litterati app. A video of the situation on Monday afternoon May 16th can be seen here. [hier](#).



Litterati map of May 16 filtered on [firework]. Source: Litterati partner portal Lekjutters
Inset top left: part of the photo gallery from the Zwerfafvalkompas. The Zwerfafvalkompas is an analysis tool based on data from Litterati.

To determine the level of pollution after the cleanup by the festival organization, we came up with a plan to separate the plastic fireworks debris from the sand on the shore using the property that plastic floats while sand sinks in water.



Image: The 'washing installation' consists of a pan shovel, mortar tub, and fine-mesh sieve.

Over about 100 meters, 1 to 2 cm of sand was scooped up on the waterline and put into a mortar tub filled with water. This separated the plastic from the sand. Periodically, the water with floating plastic particles and plant remains was poured out of the tub through a sieve, after which the clean sand was returned and the tub refilled with water for the next section.

Image in the top right: excavation of the waterline.
Image in the bottom right: plastic debris mixed with plant remains rising to the surface.



This method yielded a bucket full of plastic particles mixed with plant residue in 4 hours. We let this mixture dry for a day to eliminate the adhesion forces between the plastic, water, and plant residues.

Then, the plant residues were manually removed, and the plastic pieces were sorted by size. Table 1 shows the number and weight of the plastic pieces, following the OSPAR methodology of Schone Rivieren, with an additional determination of the weight per category.

Note 1: the number of pieces in the 0-2.5 size range is estimated based on a count of 20% of the total.

Note 2: the undefined pieces also originate from the fireworks, but they are included in these categories because they would not be recognizable as fireworks if found separately.

ospar ID	omschrijving	aantal	gewicht in gram
117.1	ongedefinieerd hard plastic 0-2,5 cm	9265	495
46.1	ongedefinieerd hard plastic 2,5-50 cm	201	166
43.1	vuurwerk	79	304
64	sigarettenfilters	3	
1172	ongedefinieerd piepschuim 0-2,5 cm	1	
53	overig rubber	1	

Tabel 1



Image: a portion of the sieved material that is drying



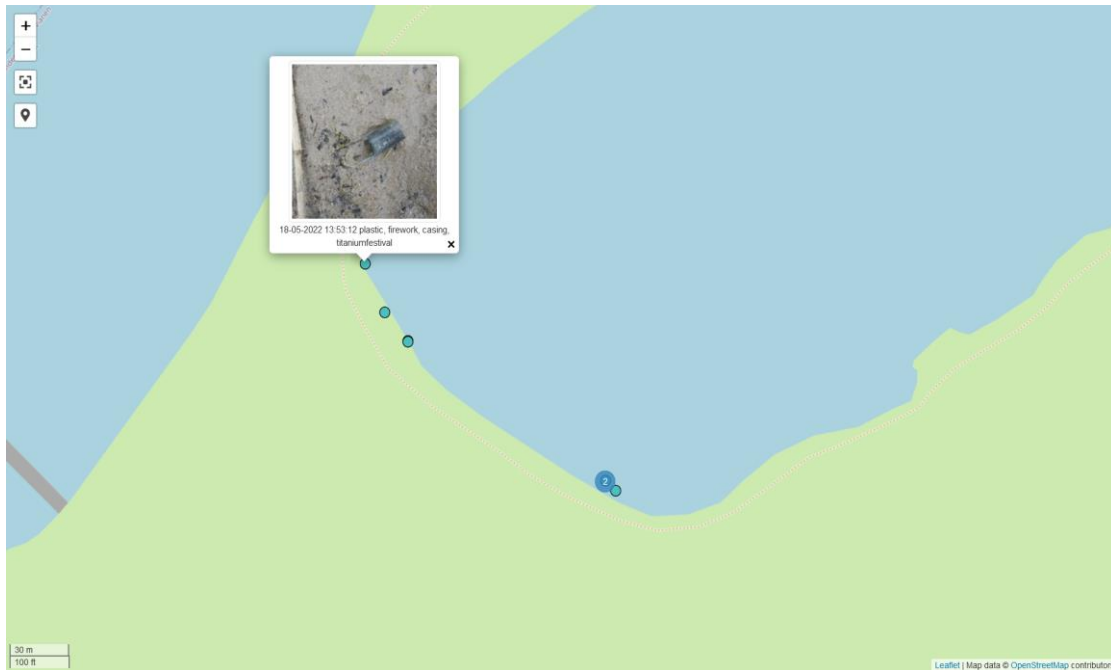
A portion of the sorted material



The 9,545 pieces and fragments of plastic fireworks debris represented as a fragmentation bomb: **'Knalplastic'**

But has everything been cleaned up after the second cleanup operation? The answer is no. On Wednesday, May 18th, we found eight more fireworks fragments within six minutes, apparently buried deeper in the sand and brought back to the surface by grazing cattle or playing dogs stirring up the sand. And on Sunday, May 22nd, we picked up another 13 pieces.

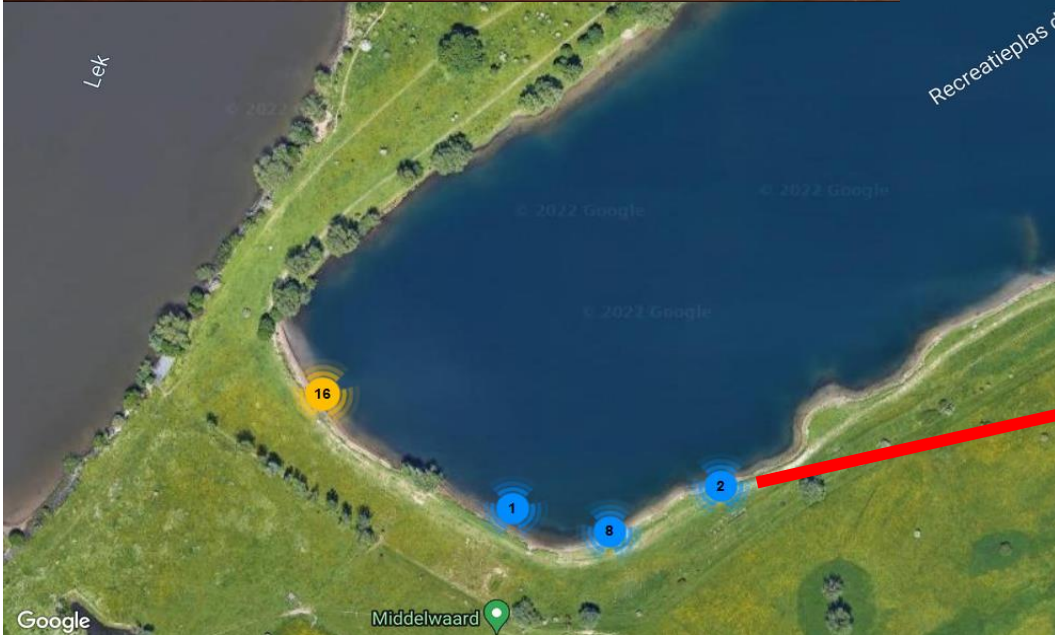
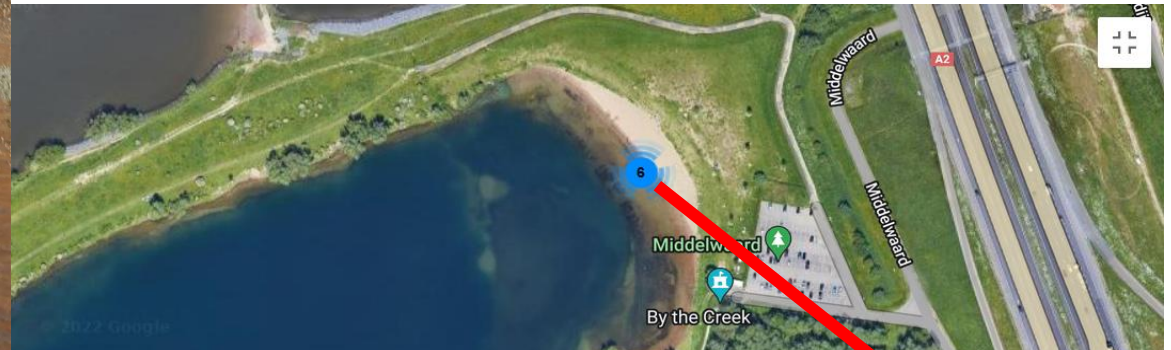
Maps and photos from the Zwerfafvalkompas on May 22nd and 24th.



18-05-2022 13:47:34	18-05-2022 13:47:58	18-05-2022 13:47:59	18-05-2022 13:48:13	18-05-2022 13:51:34	18-05-2022 13:51:44	18-05-2022 13:52:21	18-05-2022 13:53:12
firework casing	firework casing	firework casing	firework casing	firework casing	firework casing	firework casing	firework casing
plastic	plastic	plastic	plastic	plastic	plastic	plastic	plastic
titaniumfestival	titaniumfestival	titaniumfestival	titaniumfestival	titaniumfestival	titaniumfestival	titaniumfestival	titaniumfestival

During an evening walk along the waterline on Tuesday, May 24th, we found 34 more plastic fragments from the fireworks, including six pieces on the recreational beach on the east side and also on the gravel-covered south bank. On the west side, some pieces were floating in the water, apparently carried back by the rainwater runoff. The wind had been blowing from the north to west in the previous days. On Friday, May 27th, we also found 20 more pieces. Please see the image on the next page.

Left photo: fireworks debris found on May 24th. Image below: Litterati map from May 24th showing the locations and numbers of found fireworks residues. Inset: screenshot of the photo gallery of these items..





20 plastic fireworks residues were found on Friday, May 27th, 12 of which were found on the recreational area of the lake.

The fireworks display at La Musicafestival.

Two weeks later, on May 28th and 29th, the two-day La Musica festival was held on the other side of the Lek river, at the location of Beachclub Klein Scheveningen. On the first day, the final show consisted of a fireworks display lasting for about 15 minutes. This fireworks display was also mainly launched from the water, this time from a pontoon on the Lek.

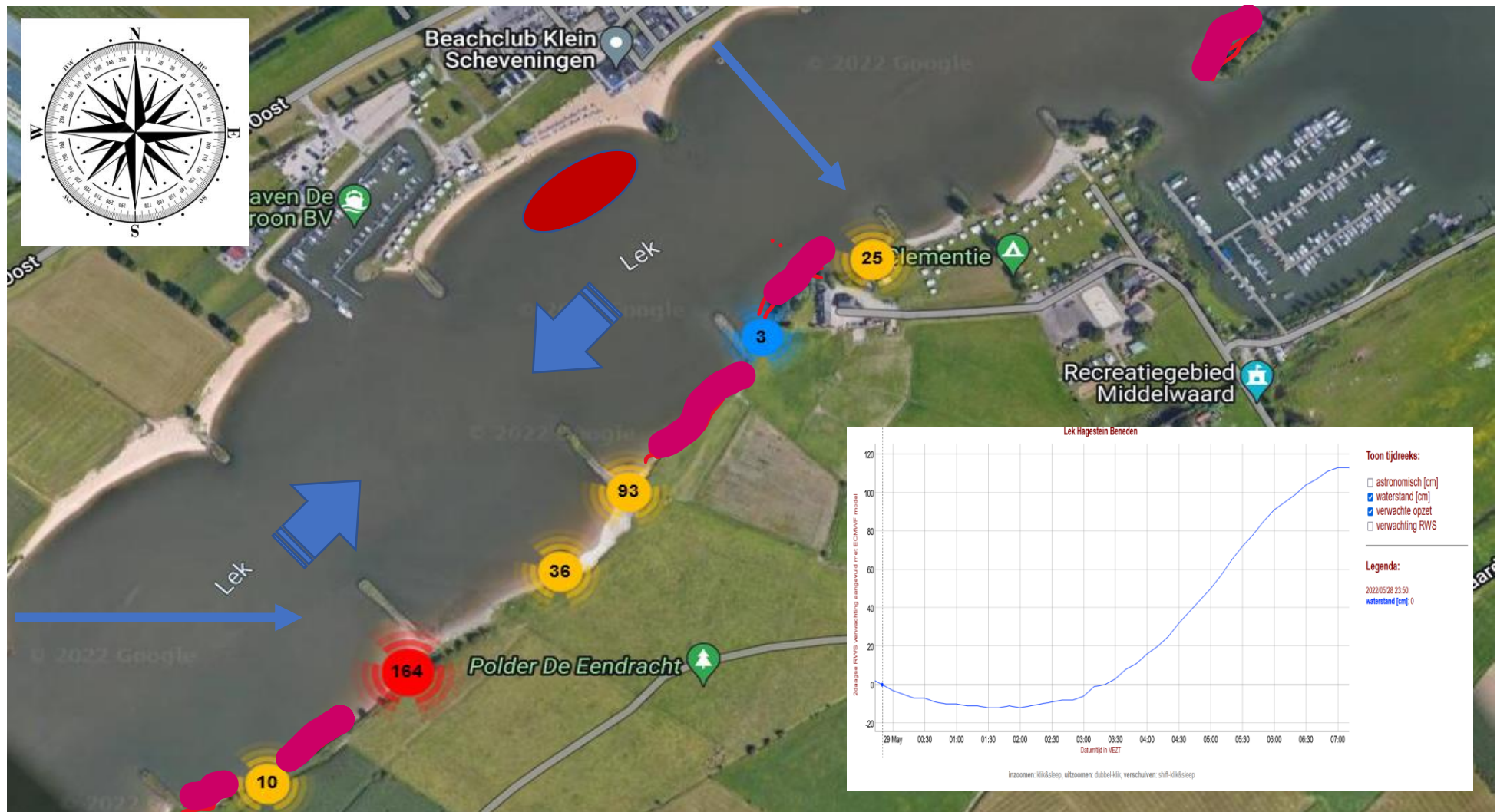


On Saturday evening between 11:35 pm and 11:47 pm, fireworks were launched from a pontoon on the Lek river in front of the beach at Beachclub Klein Scheveningen (red oval on the map below) with a weak to moderate wind from the northwest. The Lek river is still a tidal river at this point, with a tidal range of approximately 1.30 meters. Two hours after the fireworks, it was low tide, so there would have been a slight ebb flow towards the sea immediately after the fireworks, in combination with a discharge of 0 to 35 m³/s through the Hagestein weir. The flow reversed with the incoming tide after low tide.

The next morning we found a large number of plastic fireworks remnants over a stretch of 800 meters on the leeward beaches similar to what we found earlier at Plas Middelwaard. We registered 335 larger pieces with the Litterati app. See the colored dots on the map for the number of remnants found at each location.

The purple-marked shoreline areas are covered with stones and are difficult or impossible to access.

Watch a video of the situation on Sunday [hier](#)

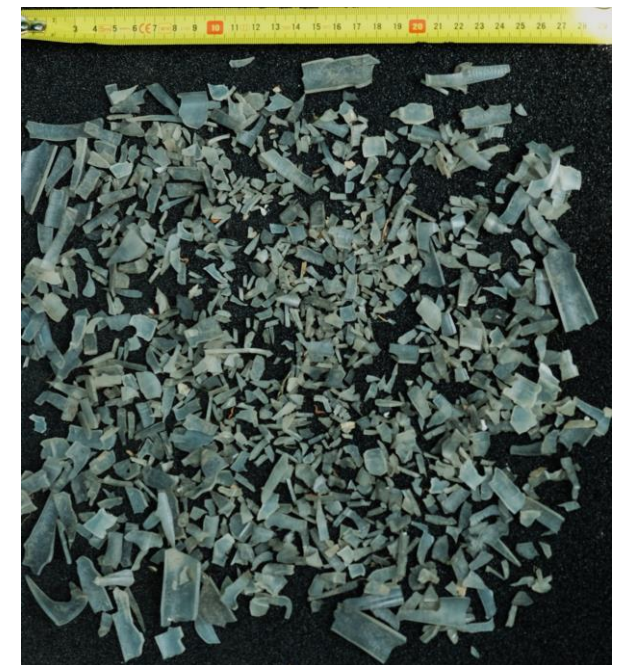
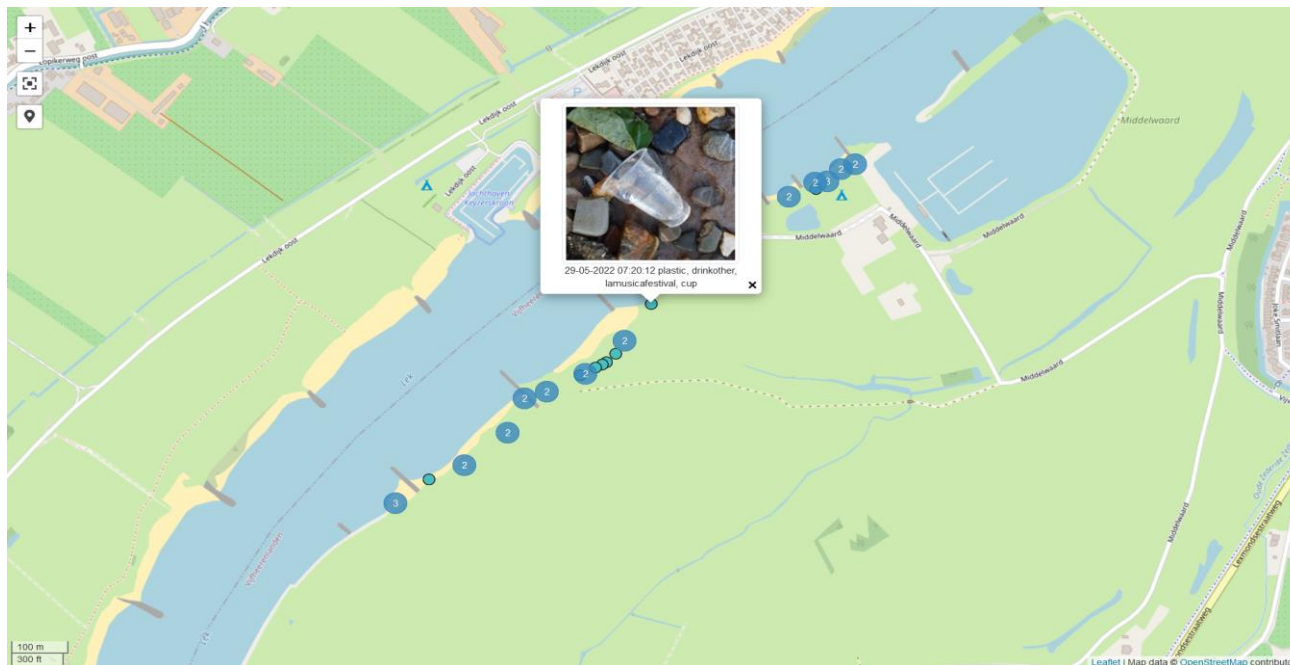


On the image next to this text, most of the 335 larger pieces can be seen. Some of the round lids were marked with the brand name Ricasa, a well-known brand of professional fireworks.

Among the fireworks debris on these beaches, we also found 39 plastic cups, all of the same beer glass model. (map at the bottom left)

On Monday, May 30, we attempted to clean up the small fragments at least on the sandy shores. After working with a dustpan and brush on 10 meters of shoreline, a heavy wake from a passing ship washed the remaining fragments high up onto the shore among the vegetation.

In the photo at the bottom right, you can see the 1,290 fragments we were able to clean up from this ten meters of shoreline.



In the following days, we searched the entire bank from the mouth of the Pontwaardgeul in Vianen (top right) to just past the Lexmond marina (bottom left) along the entire stretch of over 5 km. Each blue dot represents two to ten cups. Each green dot stands for a single cup. In total, we found 218 plastic cups of the model used at the La Musica festival. This gives a good indication of how far floating plastic from one point location can spread over a large area in just a few days. The purple marking indicates the stone-strewn shore. On one of the beaches just upstream of the Lexmond marina, we found fresh fireworks residue (see inset). It is highly likely that a considerable amount of plastic fireworks debris ended up between the stone-strewn shore of the beaches opposite the firing location and the Lexmond harbor.

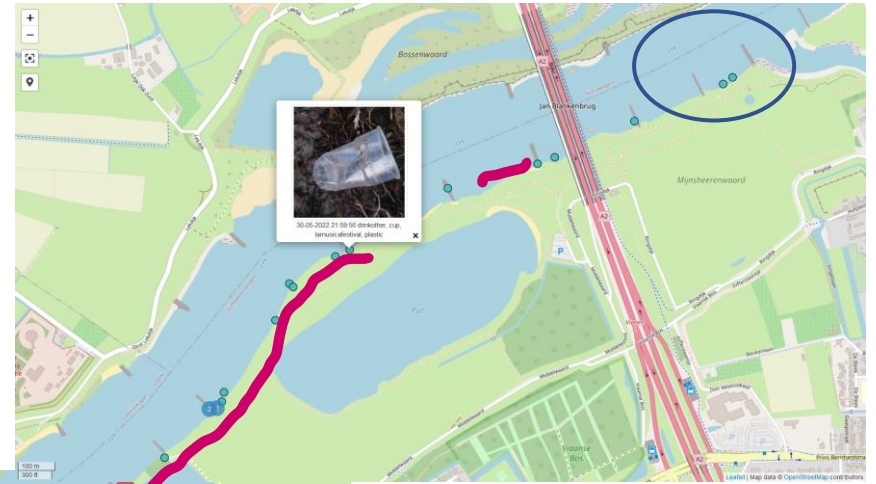


Image below: A portion of the photo gallery with plastic cups between the stone-strewn shore upstream of Lexmond.



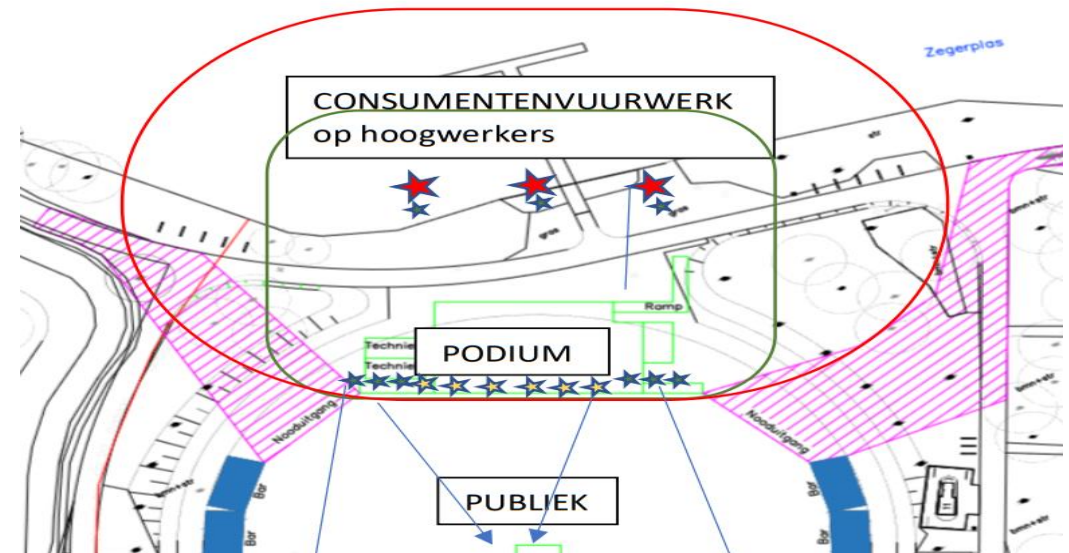
The fireworks at the Zomerspektakel aan het Meer

During the Pentecost weekend, from 3 to 5 June, the Zomerspektakel aan het meer festival in Alphen aan den Rijn concluded every night with fireworks.

Unlike the festivals discussed earlier, here the (consumer) fireworks were launched from cherry pickers that were positioned right on the banks of the Zegerplas. The wind was stable from the northeast on the first two evenings and from the west on Sunday evening, so there was an onshore wind during all three fireworks shows.

During an inspection on Thursday afternoon, June 9th, no fireworks debris was found in the water or directly at the water's edge. The southern half of the Zegerplas has dense bank vegetation of reeds and blackberry bushes, which are only interrupted by small dog beaches in a few places.

The northern half of the lake has a concrete quay wall.



- ★ Consumenten vuurwerk <1 inch – Afstand 40m minimaal
- ★ PSE vuurwerk singleshots – Afstand 8m tot publiek vanuit hoogwerker
- ★ PSE vuurwerk Bengaals vuur en strobe effect – Afstand 1m/2m

Directly behind the stage, we did find several dozens of firework remnants.

Left image.

We found 26 plastic caps, similar to the ones we found at the Middelwaard lake and in the Lek river. We didn't find any plastic rocket engines, but we did find four cardboard ones.

Right image.



The potential consequences of left-behind (plastic) fireworks debris

In this chapter we discuss the possible consequences of fireworks residues that remain in the environment. Milieu Centraal has dedicated a special page on its website on this topic. : [vuurwerk en het milieu](#)

The images below and to the right are screenshots from that page, with tip 04 being particularly relevant for this case.

Bodem- en watervervuiling

De schadelijke stoffen in onverbrande resten van vuurwerk en in de kleine stoffeeltjes, dalen neer en komen dan vooral in de bodem terecht. Het gaat dan om schadelijke zware metalen, zoals koper, barium, strontium en antimoon, en in het geval van illegaal vuurwerk mogelijk ook cadmium. Barium, antimoon, strontium en cadmium zijn schadelijk voor de gezondheid van mens en dier. Koper is in hoge concentraties giftig voor dieren die in het water leven, en schadelijk voor planten.

Gaandeweg verplaatst de vervuiling zich naar het oppervlaktewater. Via deze weg levert vuurwerk een forse bijdrage aan de ophoping van zware metalen in het milieu. Die zware metalen kunnen niet worden afgebroken door biologische processen en blijven dus het milieu vervuilen. Voor koper, barium en cadmium worden de milieunormen in het water overschreden. Vuurwerk draagt daaraan bij. Ongeveer 18 procent van al het koper in het oppervlaktewater is afkomstig van vuurwerk.

Tips vuurwerk en het milieu

01

Koop **geen** illegaal vuurwerk. Er kunnen zeer **schadelijke stoffen** in zitten, zoals cadmium.

02

Verminder de hoeveelheid vuurwerk die wordt afgestoken: werk samen met de burens, organiseer iets met de hele straat, of ga alleen kijken.

03

Ruim **vuurwerkafval** zo snel mogelijk **en veilig** op, zodat schadelijke stoffen niet in het milieu komen.

04

Koop **geen vuurwerk** waarbij **plastic** uit elkaar knalt zoals knetterballen. Dit is lastig op te ruimen en plastic zwerfafval breekt niet in de natuur af.

It is clear that the polluting substances from the fireworks in this case were directly released into the surface water, as the fireworks were launched from pontoons on the water.

This violated article 6.2 of the Water Act, which states: "It is prohibited to introduce substances into a water body, unless:
a. a permit for this purpose has been granted by Our Minister or, with regard to regional waters, by the board of the relevant water board."

The use of fireworks containing plastic not only causes chemical contamination with heavy metals, but also results in significant pollution with plastic debris, a portion of which is immediately fragmented into microplastics (<5 mm). Many of these plastic fragments have sharp edges, as shown in the photo next to this text, posing an immediate risk of injury to humans and animals that step on them or ingest them with food or drink. Scientific research on the stomach contents of Northern Fulmars in the North Sea has shown that 9 out of 10 birds have plastic in their stomachs. [Bron: WUR.nl Nieuws plastic in vogelmaag](#) If this plastic accumulates in the bird's stomach, it will lose its appetite and weaken because it does not get enough nutrients.



De geopende grote kliermaag met plastic inhoud (foto: Anastasia O'Donoghue)

The plastic from the fireworks on May 14th at Middelwaard lake is unlikely to end up in the North Sea, as it is located in an enclosed lake in a floodplain that only overflows during extremely high river discharge. However, this is certainly the case with fireworks on or near open water (such as the fireworks festival in Scheveningen).



Plastic firework debris from the May 14 display..

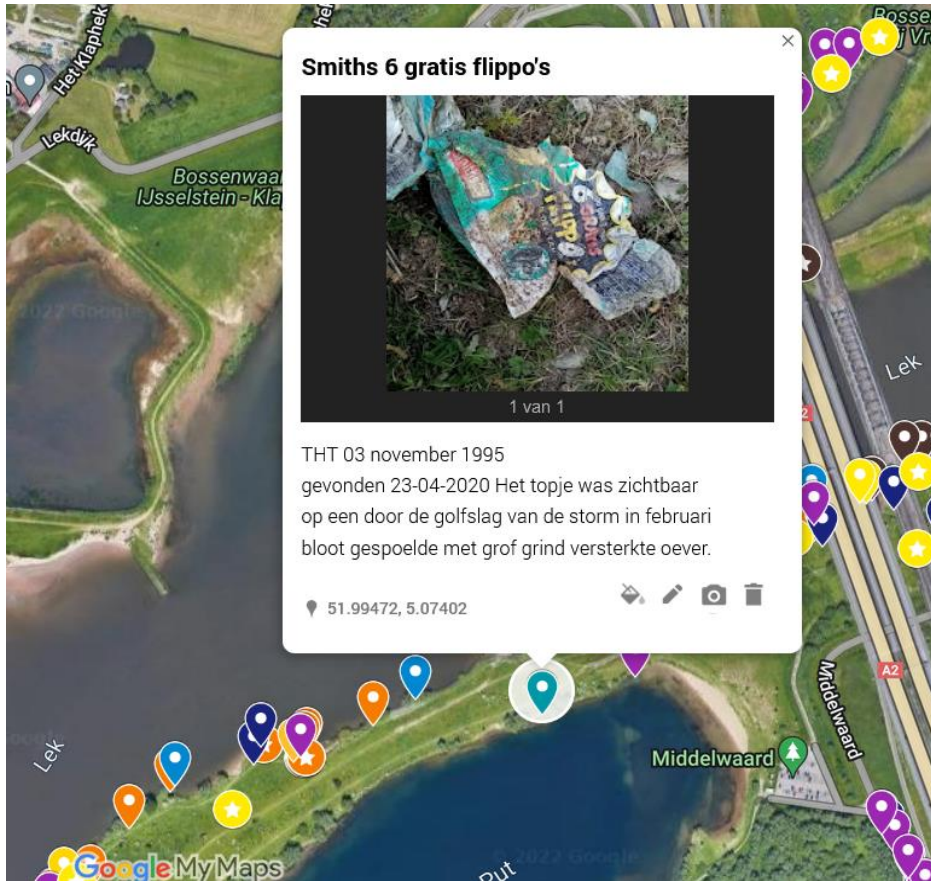
Plastic waste left in the environment will eventually break down through weathering into smaller and smaller pieces, ultimately turning into nanoplastics that can easily enter the food chain.

While the fireworks debris from May 14th was mostly easy to clean up from the sandy shore on the west side of the lake, what if the wind had blown it onto a vegetated or gravelly shore?

Although Plas Middelwaard is an isolated lake, it is connected to the Lek River through groundwater and has a fluctuating water level. With a higher water level, the plastic that is currently on the shore could float and be carried to other parts of the shore by the wind.

Plastic that is buried under the sand could also become mobile again due to wave action during periods of high wind.

A striking example of this occurred in the spring of 2020 when, after a spring storm, we found a crisps bag with a best-before date of November 1995 on the north shore of the lake, between the gravel.



Crisps package from 1995 found on the shore of Middelwaard Lake Source: Lekjutters Litter Museum.

Plastic debris that has entered the water will gradually spread over the entire shore and, in open water, will move over an even larger area and remain a risk to the health of humans and animals for years to come.

The remains of fireworks that are set off on land will, depending on the substrate on which it lands, be less mobile but also difficult to clean up if it ends up among vegetation.

Conclusions and recommendations.

Plastic fireworks debris is regularly found among litter in and along surface water and on land, but is often not recognized as fireworks waste, especially when it has become fragmented.



Screenshot of a tweet from Trash Hunters Zwolle. They asked what kind of plastic pipes they had found. I answered then that it was firework debris.

It turned out to be from the King's Day fireworks display at the Rode Torenplein a few days earlier.

- Due to the nature of the product, plastic containing firework, designed and intended to be shot outdoors, inevitably becomes litter after use.
- These plastic debris pose a threat to the health of humans and animals.
- Due to the manner and location of use, it will be practically impossible in most cases to clean up and collect the (fragmented) remains for reuse.
- Thus, the use of plastic in fireworks does not meet the objectives of a circular economy.
- Despite adopted Chamber Motions, the "Knalplastic" covenant, and consultations with the fireworks industry, plastic is still being used in fireworks.
- The promise of leaving the location clean by fireworks companies is an empty promise that cannot be fulfilled.
- The fireworks industry is not willing to take responsibility. The unlimited shooting and detonation of fireworks with plastic significantly contributes to the plastic soup.
- Shooting fireworks from or near water is undesirable due to the substances that inevitably end up in the water. In such cases, a water permit is required.
- Operation Knetterbal has proven that there is an alternative to plastic in fireworks - in 2020, paper crackling balls were on store shelves.
- It is recommended that municipalities and provinces, as long as national and European politics fail to come up with regulations, include in the permit conditions that only plastic-free fireworks may be used for fireworks displays.
- It is desirable that the EU expands the Single Use Plastics Directive with a ban on plastic in fireworks as soon as possible.
- Festivals that truly want to be sustainable may consider replacing the finale fireworks with a laser and/or drone show.

KNALPLASTIC MOTIE IN TWEEDE KAMER AANGENOMEN

Bij het begin van de campagne, november 2019, heeft GroenLinks Tweede Kamerlid Suzanne Kröger een motie ingediend die de regering verzoekt na te gaan hoe plastic in categorie F1 vuurwerk kan worden tegengegaan. Staatssecretaris Stientje van Veldhoven heeft deze motie overgenomen en heeft tevens getracht hiermee het Europese beleid te beïnvloeden.

Maar helaas bleek in de loop van 2020 dat de EU voorlopig nog niet over gaat op een verbod op vuurwerk met plastic. Hier is nog werk aan de winkel!

Nr. 582

MOTIE VAN HET LID KRÖGER
Voorgesteld 21 november 2019

De Kamer,
gehoord de beraadslaging,
overwegende dat in geheel Europa, ten gevolge van uitvoering van de Europese SUP-richtlijn, maatregelen worden voorbereid om plasticvervuiling door wegverspreide producten te verminderen;
overwegende dat in vuurwerk plastic wordt toegepast dat na ontbranding bijna onvermijdelijk in het milieu terecht komt;
overwegende dat er de jaar af meer dan 10.000 stuks plasticbussen en plasticrestanten van de zogenaamde categorie F1-vuurwerkknalvuurwerk zijn vastgelegd door een kleine groep zwerfvallappers en dat deze plasticrestanten door heel het land en gedurende het hele jaar worden aangetroffen op straat en in de natuur;
verzoekt de regering, om te onderzoeken hoe samen met de vuurwerkbranche het gebruik van plastic in vuurwerk en het aanbieden van vuurwerk waarin plastic is verwerkt kan worden tegengegaan, met in het bijzonder aandacht voor de categorie F1-vuurwerk, en de Kamer hierover te informeren,
en gaat over tot de orde van de dag.

Kröger

Tweede Kamer Motie Kröger

Screenshot The "Knalplastic" motion was adopted in 2019 by the Dutch Parliament, but plastic is still being used in fireworks in the Netherlands.

fuego-fireworks

Meet the professionals in fireworks

HOME OVER ONS

Vuurwerkshows

Wij verzorgen complete vuurwerkshows inclusief vergunningen!

Fuego-Fireworks staat voor exclusiviteit, kwaliteit en veiligheid in de shows die wij verzorgen. Daarom zeggen wij: *Meet the Professionals in Fireworks!*

Alle vuurwerkshows worden compleet door ons verzorgd, inclusief het aanvragen van een vergunning of melding t.b.v. de ontbranding van het vuurwerk voor uw evenement. Wij bouwen de show volgens vooraf vastgestelde plannen en leveren de locatie uiteraard na de show schoon op. Hieronder ziet u diverse mogelijkheden die wij kunnen aanbieden.

Onder de kop 'Vuurwerkvergunning' onderaan deze pagina vindt u meer informatie.

* Alleen in Nederland

Screenshot website Fuego-fireworks. Underlining by the author of this report

I have sent this report to Fuego-Fireworks and received the following response: “The location was handed over on Sunday evening, and the washed-up fireworks debris was also included in the cleanup activities. We could not do this immediately after the show since the wind direction was over the lake, and it took some time before the debris could wash ashore. We noticed that you went to great lengths by digging and sieving the beach. However, we find it less thorough to state that all remnants are due to our fireworks show, and we cannot confirm this.”