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Plastic Origins Expedition Rhine 2021

After 15 days of descent, the figures of the mapped waste

On 5 September, the Surfrider Foundation Europe team arrived in the Rhine delta after a 15-days expedition that enabled them to map the waste in several sections of the river, using the Plastic Origins mobile application. Here is a look at the key information to remember.

Photos of the expedition to be found here

Mapping waste on Europe's rivers: this is the ambition of the Plastic Origins programme. Developed by Surfrider Foundation Europe in partnership with Microsoft's Share AI program and several volunteer engineers, Plastic Origins is based on citizen science: citizens who enjoy nature sports are invited, thanks to the application, to take videos of the waste found in rivers during outings on foot, in a canoe, a paddle or other watercraft.

The Plastic Origins expedition on the Rhine was a good way for the team to get the application into the hands of many users, especially from Surfrider's volunteer branches located along the route.

In total, the expedition brought together 51 different volunteers over two weeks: 12 current or former Surfrider Europe employees, 2 skilled volunteers, 3 digital developers working on artificial intelligence, 3 influencers and media, 30 volunteers

from Surfrider's European branches and external people from local associations or research programmes on the issue of plastic pollution.

In total, 155 km were covered on the Rhine or its direct tributaries through stages on foot, by kayak, rafting or canoe. At each of the 6 stages, participants took control of the application and collected data on one or more sections of the river. The Plastic Origins application provides an indicator of macro-waste pollution in rivers, corresponding to the number of pieces of waste reported per kilometre of riverbank.

First results

At the source of the Rhine in the Swiss Alps, downstream of Lake Toma, the first waste was identified with an average of 21 items of waste per kilometer, mainly food packaging from hikers, waste from mountain exploitation and wild camping. This data shows that the problem starts at the source.

Further downstream, in the Little Swiss Grand Canyon between Illanz and Reichenau, 38 items of waste per kilometer were recorded during the rafting trip. This waste, mainly of industrial origin or fragments of plastic, was probably washed away by the high water levels and flooding that occurred this summer. It was retained in the vegetation along the banks.

In contrast, very little litter was observed on the lower part of Lake Constance: on average 0.49 pieces of litter per kilometze of shoreline: the developed nature of the private shorelines in this part of the lake probably explains the absence of litter. On the other hand, a slightly higher indicator (3.9 items of litter/km of shoreline) was found when leaving the lake and returning to the undeveloped, wild Rhine.

On the Brunnwasser and the Rhin Tortu, two direct tributaries of the Rhine upstream of Strasbourg, there is a lot of household waste, bottles and food packaging. An average of 43.8 items of waste per kilometer of bank were reported on the Brunnwasser, compared with 22.4 on the Rhin Tortu.

In the Middle Rhine Valley, little litter was observed from rafting along the developed banks (1.6 items of litter per kilometre), while the following day, when walking along a wilder bank, more than 78 items of litter per kilometer were reported: masks, packaging, bottles, plastic fragments.

In the Netherlands, the last survey was carried out in a nature park in Biesbosch, upstream from the estuary. Relatively little litter was observed, in contrast to what might be expected at the mouth of the Rhine, with an average of about ten pieces of litter per kilometer of shoreline. This is probably due to the protected nature of this natural area.

Citizen science for data collection

This expedition has brought together the European Surfrider community as well as the associative and research community, whom are mobilised to protect natural and

particularly aquatic areas from plastic pollution. Thanks to the motivation of the participants to continue collecting data on their territories and to share the Plastic Origins experience, the project is expanding beyond the French borders and is establishing itself as an innovative participatory science project to map plastic pollution in rivers. The results obtained have brought to light important elements of understanding on the mechanism of waste capture by rivers: the type of local and industrial activities and practices, exposure to floods, the type of bank and environment are parameters that come into play in the presence of waste. It is therefore more than necessary to obtain a large amount of data spread over the European territory to be able to act against this pollution, by working closely with local, national and European decision-makers.

Photos of the expedition to be found here
Interviews of attendees (in english and french)

The full press kit of the expedition is here. Do not hesitate to contact us for any further information.

Surfrider Foundation Europe, an NGO created in 1990, works to protect the oceans, the coastline, the waves and their users. For 30 years, with a team of experts and 49 volunteer chapters in 12 European countries, the association has been working with stakeholders (citizens, private and public sectors) on several major issues: marine litter, coastal management, climate change, water quality and user health. Discover the association on www.surfrider.eu/en

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