

# Dam Plastics

*From one dam on one river to no plastics in all rivers*

From one dam on one river to no plastics in all rivers, *Dam Plastics*, empowers stakeholders to systematically monitor and control the flow of plastic.

Plastic pollution in oceans is an important and well-documented sustainability issue, yet how this plastic gets there is not well understood. How much plastic flows from inland to oceans? Where does plastic pollution most commonly enter riverine systems? Do rivers act like a highway for plastics flowing from highly populated areas outwards?

Dam Plastics attempts to answer these questions by **linking dam operators and citizen scientists** to measure and monitor plastics through a procedural and adaptable toolkit. The result: standardized, reliable, comparable, and actionable data about riverine plastic waste. Recommendations are provided in the toolkit about how to act on the collected data by combining holistic knowledge (gathered using the toolkit) of plastic pollution in rivers with localized knowledge and ownership. Formed in 2019, the members of Dam Plastics were brought together by a mutual interest in learning how to map and measure plastic pollution.

Our project moved through several iterations, from sending people to dams with nets to fish plastic out of rivers, to deploying 'bubble nets' to help collect plastic at river choke points. But then, we talked with dam operators and learned about their challenges, and realized that we totally underestimated the scale of the problem: some dams are collecting tonnes of waste per day. So we had to change our methodology to match what the rivers and dams were dealing with, which led to the development of our pilot project.

Our benchmarking showed that there is already a lot of data about microplastics, and that microplastics are so small that they can't be traced back to their source and are extremely difficult to remove from the environment.

So we decided to target the problem before it becomes uncatchable microplastics and fill a gap in our knowledge about plastic pollution, creating solutions for monitoring meso- and macro-plastics in rivers, before they breakdown into microplastics and before they reach the oceans. Tackling the meso- and macro-plastics pollution problem is more visible, impactful, and more actionable.

## DAM PLASTICS

There's no better place to start than in our own backyard. The first river to be monitored with the Dam Plastics toolkit, is our very own, Rhone River.

On the Rhone River many dams use "claws" to pull up waste, such as plastic, that gets caught against the dam. The claw drops the waste into a big bin and then that's where our intervention comes in. Before it's transported to the incinerator, as part of the Dam Plastics protocol, the waste is photographed with an automatic camera, the same kind of "camera trap" that's used to catch pictures of rare wild animals. The photos are then uploaded onto a citizen science platform online, for citizen scientists to help turn these photographs into big, actionable databases.

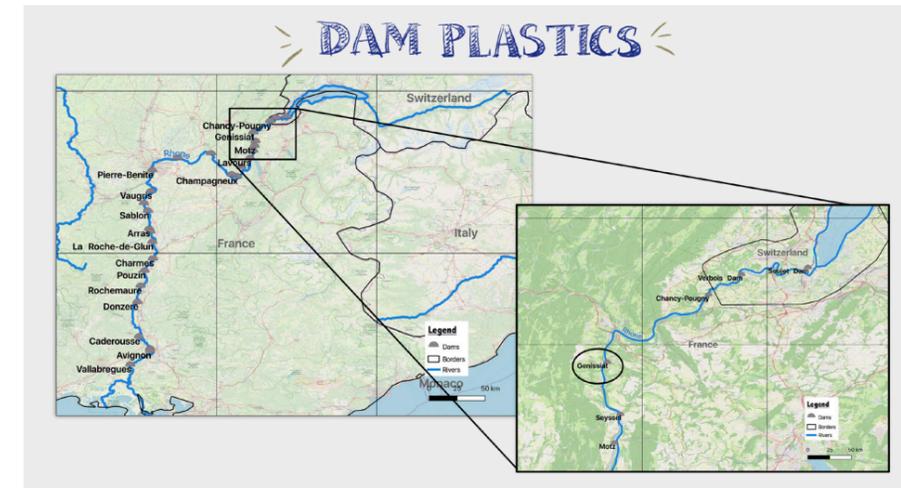
Using an intuitive set of online tools, citizens can create data about the plastic waste removed from the dams, such as measure-

ments of the length and width of a plastic item. Each plastic piece is also categorised, assessed as either whole or broken, and if possible, attributed an origin, such as "Hen-niez" or "Coca Cola".

We believe that local stakeholders know best how to transform information into appropriate action. This takes us to the next step: After knowing who is responsible, this allows us to identify culprits and make it clear that enough is enough! Not just say, but do! However, who is going to do this? We believe localised action is key. Local stakeholders must Take ownership of the cleanliness of their nearest river. We firmly believe that while normal everyday people must take the lead in fighting plastic pollution, it is the producers whose behavior and production patterns must change.

So perhaps one will write the catchy statistic produced with this data on your protest sign, perhaps you will use a shocking map of the quantity of plastic waste along your river to lobby for new legislation in your commune, or perhaps you'll send a database worth of pictures of branded plastic bottles to publicly or privately shame producers, and surely your evidence-informed actions will contribute to a cleaner world.

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Rhone River Map



Dam Waste Island



Dam Plastic Team:



Detritus Collector Claw

### THE TEAM:

#### WILL RYNEARSON

Will grew up in the Pacific Northwest in the United States, studied Mechanical Engineering in Montana, and has studied and worked in Thailand, Kenya, Switzerland and China. Will is interested in the intersection of policy, science, management and communication, and taking a more holistic approach towards solving problems within the SDG framework.

#### JIAN WEN LI

Born in Beijing, raised in Toronto, Jia Wen is a cultivated creative. Her background in environmental studies familiarized her with interdisciplinary and cross-cultural discourses around environmental thought and behaviour. When she is not drawing for DamPlastics, she likes to hike.

#### HANNAH HILBERT-WOLF

Hannah, who has a PhD in Earth Sciences and a background in STEM education, is interested in the positive work that can be done at the intersection of science and society. Her aspiration is to work towards the protection, good management, and equitable use of the key natural resource, water.

#### HUGO POWELL

Born and raised in Geneva, Hugo is the local of the group. With a passion for GIS and spatial data, Hugo was drawn to Dam Plastics due to the potential for the project to use mapping and visualisation to instigate serious change. Hugo is an avid music composer and professional cocktail maker in his spare time.

#### VALENTINE HARAN

Born in Paris, Valentine studied economics and business administration in France and Hong Kong. Valentine is the French speaker and business development guru of the group. She also works for the NGO Climate Collage and regularly holds climate change workshops aimed at finding innovative approaches to solving issues related to climate change.