

**European Youth River Action Network**

In 2016, the European Youth River Action Network was invited by the GRÜNEN LIGA and GETIDOS in Berlin. Young people from all over Europe and the Middle East wrote a „Travel Guide to the Spree“, with pictures and text inspired by Goethe’s natural-phenomenological method:

- ▶ <https://en.ynra.eu/news-details/travelguide-to-a-river-with-the-youth-network-for-river-action-2016-to-the-spree-of-berlin-145.html>

**River Film Festival Berlin 2018**

The River Film Festival in January 2018 devoted a whole day to the topic of plastic pollution in our water bodies. It showed short films such as „Our plastic, our problem“ and „Plastic Soup Surfer“, scientists from the IGB presented their research results, Alles im Fluss reported on actions against the (plastic) garbage in and around Berlin.

- ▶ <http://www.flussaktionen.de/flussfilmfest-2018.html>

**Contacts/  
Literature/Links**

Living Lakes – The International Network:

- ▶ <https://www.globalnature.org/en/living-lakes>



GRÜNE LIGA e.V. is a partner of Living Lakes Germany

Sources, fate and effects of microplastic in the marine environment:

A global assessment – GESAMP:

- ▶ [http://ec.europa.eu/environment/marine/good-environmental-status/descriptor-10/pdf/GESAMP\\_microplastics%20full%20study.pdf](http://ec.europa.eu/environment/marine/good-environmental-status/descriptor-10/pdf/GESAMP_microplastics%20full%20study.pdf)

Microplastic in the ocean – GESAMP:

- ▶ [http://www.gesamp.org/site/assets/files/1720/24472\\_gesamp\\_leaflet\\_pq.pdf](http://www.gesamp.org/site/assets/files/1720/24472_gesamp_leaflet_pq.pdf)

Sources of microplastics relevant to marine protection in Germany – Umweltbundesamt:

- ▶ [https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/texte\\_64\\_2015\\_sources\\_of\\_microplastics\\_relevant\\_to\\_marine\\_protection\\_1.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/texte_64_2015_sources_of_microplastics_relevant_to_marine_protection_1.pdf)

Microplastics and persistent fluorinated chemicals in the Antarctic – Greenpeace:

- ▶ <http://www.greenpeace.org/argentina/Global/argentina/2018/06/microplastic-antarctic-report-final.pdf>

Fast fashion, fatal fibres – Greenpeace:

- ▶ [https://www.greenpeace.de/sites/www.greenpeace.de/files/i03971e\\_gp\\_flyer\\_mikrofaser\\_7\\_17.pdf](https://www.greenpeace.de/sites/www.greenpeace.de/files/i03971e_gp_flyer_mikrofaser_7_17.pdf)

Fraunhofer Umsicht takes position under topic: Microplastics – Fraunhofer Umsicht:

- ▶ <https://www.umsicht.fraunhofer.de/content/dam/umsicht/en/documents/publications/2017/position-paper-microplastic.pdf>



Transform rubbish into art – Stephan Horch, photo artist and hobby paddler, collects waste in rivers on his trips and sets it in scene artistically. – picture: Stephan Horch, cleanriverproject.de

**Microplastics in our waters**

Plastic became a huge part in our everyday lives. Not only has it changed the way we travel or package, but also how we eat, clean or dress. It is cheap, durable, lightweight and has made all our lives easier. Even though, the consequences of using plastics have become more and more visible. Today pollution caused by plastic materials has reached new dimensions. Compared to 60 years ago production of plastics increased by 170 times. Estimated 10 percent are washed out into the oceans, where it accumulates and is hardly biodegraded. But also our freshwaters are faced with the pollution. Almost everywhere in the world microplastics are detected – and the long term effects are not yet foreseeable.

- ▶ **Keywords** Microplastics, water pollution, sewage, waste, protection of the oceans, public participation

**Definition**

Plastic is mostly made from petroleum. It consists of long, branched molecular chains with identical building blocks, which, unlike natural materials, are only biodegradable in extremely long periods of time. Therefore, plastic remains in the environment for hundreds of years. Plastic often contains additives that give the product desired properties, but can affect the health of animals and humans. Bisphenol A or brominated flame retardants have a carcinogenic effect.

Primary microplastics are any plastic fragments or particles that are smaller than 5.0 mm. Secondary microplastics are microplastics that are created from the degradation of larger plastic products once they enter the environment through natural weathering processes. Both types are recognized to persist in the environment at high levels, particularly in aquatic and marine ecosystems.

**Pressures/Drivers**



Result of the European Clean-up Day at the river Danube. – picture: Valentin Lechner

The sources of plastic or microplastics in the water bodies are very different. Primary microplastic sources are clothing, microbeads, and plastic pellets. Sources of secondary microplastics include water and soda bottles, fishing nets, and plastic bags. Littering refers to the release of waste on streets, public squares, terrain and other traffic routes and is a social problem.

Small microplastic particles can be ingested by aquatic organisms and reach the tissue through the bloodstream. This causes – depending on the particle shape – different health effects.

**Location/  
Locality**

According to a comprehensive review of scientific evidence published by the European Union’s Scientific Advice Mechanism in 2019, microplastics are now present in every part of the environment. There is truly a staggering amount of microplastics in our world’s oceans, 4.8 – 12.7 million tons every year. Hundreds of thousands parts of microplastic or plastic waste are already floating in every square kilo-

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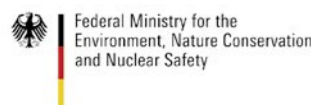
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meter of the sea. The pollution of the oceans with plastic has become a problem in the Arctic, too. Researchers have now discovered a previously unknown level of microplastics in the Arctic sea ice. Around 80 percent of the plastic waste in the oceans comes from the continental inland and especially with the rivers, it gets into the oceans.

Some German federal states have analyzed superficial water samples on 25 rivers in the drainage basin of the Rhine and Danube for microplastics and have detected different concentrations of microplastics in each water body. Around 192 million microplastic particles are already floating on the surface of the Rhine. In this way, 10 tons of microplastics are washed out into the North Sea every year. Partly more plastic particles than fish larvae occur in the Danube. Also in Lake Constance, which is an important drinking water source, plastic particles have already been found.



For cleaner water – Samples originating from the homes of the participants at the River Parliament. – picture: Justus Lodemann

**Motivation –  
What are the problems?**

The pollution of the seas by plastic waste is known for decades. In relation to its diverse applications and the high production figures, there are knowledge gaps about possible effects of (micro) plastic on the environment. Plastics in the environment could be harmful in different ways and lead to negative consequences.

It's proven that numerous groups of organisms ingest microplastic. Waterfowl, mammals and fish mistake plastic for food and starve, or get caught in bags and nets and suffocate. The potential impact of the ingestion of microplastics still needs a lot of research. In addition to direct effects, such as mechanical damage, indirect effects of microplastics are suspected. Depending on the product requirement, additives, such as plasticizer, are used. Added plasticizer, in turn, negatively affects organisms.

The impact of microplastics on the environment and on humans will be of increasing importance in the long run. In particular, the aquatic habitats are increasingly burdened. Ingested by aquatic organisms microplastics spread through the food chain up to humans.

**Relevance  
for the WFD**

Microplastics have been included as an indicator of the status of the oceans in the European Marine Strategy Framework Directive (MSFD). However, microplastics do not appear as an independent topic in the WFD's rules and regulations.

**Objectives  
& measures adopted**

**Wastewater treatment plant 4. Cleaning stage**

Wastewater treatment plants are usually three-stage. The fourth purification stage is an additional process step in the wastewater treatment plant, which serves for further purification of the wastewater, for example the elimination of microplastics.

**Ban on disposable plastic**

The European Parliament has voted for a complete ban (until 2020) on a range of single-use plastics like straws and plastic cups across the union to stop pollution of the oceans.

**Actors/  
Procedure**

The EU Commission is considering restricting the use of microplastic particles in products. To this end, it commissioned the European Chemicals Agency to complete the necessary clarification by January 2019. On January 30, 2019, the European Chemicals Agency published its 145-page report. The Agency concluded that a restriction was justified.

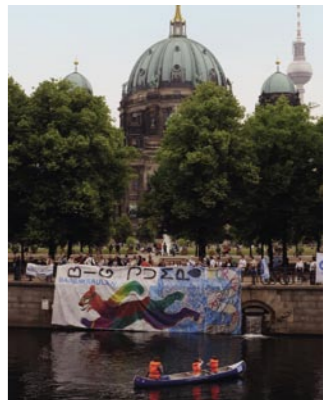
**EmiStop**

EmiStop is research for the systematic detection and prevention of microplastic emissions in surface waters from industrial wastewater. By the end of 2020, the entire industrial value chain will be investigated in the research project. EmiStop develops innovative analytical methods and evaluates selected technologies for industrial wastewater treatment. ▶ <http://www.emistop.de/>



**Alles im Fluss**

Berlin's water bodies should become cleaner again. That is the aim of the initiative "Alles im Fluss", founded by the associations WIRBERLIN and Flussbad. Both have long been aiming for more ecology and a cleaner city. The project "Alles im Fluss" wants to ensure that volunteers, experts, city administration and companies form a network that effectively prevents the pollution of Berlin's rivers and lakes. In addition to the efforts of the Berlin administration, the Berlin City Cleaners (BSR), the Berlin Forests and the water authority Berliner Wasserbetriebe, many Berliners are also campaigning for the protection of Berlin's waters. ▶ <https://www.allesimfluss.berlin/>



The Berlin Bear goes bathing – First attempts to swim. picture: Anna Bugey

**Water Pedagogical Network Berlin**

The Water Pedagogical Network Berlin organizes an annual meeting for teachers and anyone interested in water education. A mixture of lectures and workshops on the physics, chemistry and biology of waters as well as on our social interaction with water offers further education and networking opportunities. Microplastics are always on the agenda. ▶ <http://www.berlinimfluss.de/>

**Clean River Project**

The non-profit Clean River Project is a clean water project that aims to reduce plastic waste pollution by actively cleaning up the waters and raising awareness. Creative stagings of plastic garbage collected during paddling are intended to arouse the interest of the general public and promote general awareness of the problem. ▶ <http://cleanriverproject.de/>

**GETIDOS**

GETIDOS stands for „Getting Things Done Sustainably“. The socio-ecological platform GETIDOS researches sustainable problem solutions with a focus on social entrepreneurship and social innovation. The maxim stands for innovative action in the consciousness of sustainable development. For example, the Big Jump Challenge 2015 was coordinated by GETIDOS in collaboration with other environmental protection organizations. The motto was called „Youth Action for Water Protection“ and young people jumped into the water across Europe for water protection. The young people set an example for living rivers and lakes and show that cross-border cooperation in water protection is necessary and possible. ▶ <https://getidos.uni-greifswald.de/>



**Beat the microbead**

In the year 2012, an app that informs consumers about microplastic cosmetic products was implemented by the "Beat the microbead"-campaign. Meanwhile, „Beat the microbead“ is a campaign supported by 63 NGOs from 32 countries. ▶ <https://www.beatthemicrobead.org/>



European Rivers Parliament in Brussels 2015. – picture: Justus Lodemann

**River Parliament Berlin**

The River Parliament in combination with the Big Jump Challenge offered young people the opportunity to talk directly with members of parliament, to talk about water conservation actions and to present their concerns directly. In autumn 2015, water conservationists also presented their river actions at a seminar organized by the GRÜNEN LIGA e.V. in cooperation with the Greifswald University Research Unit GETIDOS under the title „Clean and Healthy Rivers“. ▶ <http://www.flussaktionen.de/>  
▶ <https://www.ynra.eu/news-details/spremuellfisch-im-bundestag-101.html>