PRESS RELEASE

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THE VERY FIRST RESEARCH PROJECT OF ITS KIND IN THE WORLD ON A RIVER TO COMBAT PLASTIC POLLUTION LAUNCH ON THE RIVER RHONE, FRANCE ON 1st APRIL 2021

A multidisciplinary partnership led by Plastic@Sea with CNR, the sole operator of the concession on the Rhone - one of the most significant waterways in Europe - the Rhone Mediterranean Corsica water agency and an ecosystem of research bodies.

Rivers are the main vectors of microplastics in the seas causing immense damage to nature and to people. While action must be taken at the source of pollution, the flow of plastics in the river-sea continuum is still little-known today. In the very first experimental research project of its kind launched on a river in the world, Plastic@Sea, CNR and the Rhone Mediterranean Corsica water agency are joining forces to better understand the mechanisms of fragmentation of plastics from the Rhone's source in the Swiss Alps to discharge into the Mediterranean Sea in Marseilles. The project PLASTIC-RHONE will begin on 1st April 2021 with field observations and will run for two years. PLASTIC-RHONE will contribute to improving knowledge about plastic pollution. The project is in line with the 2030 objectives of the European Green Deal to stop the erosion of biodiversity by at least 30% within the European Union.

80% of waste at sea comes from rivers, mainly in the form of micro-plastics

Current forecasts estimate that the **mass of plastic In our oceans and seas will equal the amount of fish by 2050**. In the Mediterranean, the concentration of plastic is predicted to increase by 8% by 2030. A situation that endangers marine ecosystems and the health of populations. In addition to reducing the use of plastics and direct discharges from maritime activities, one of the major solutions to fight against plastic pollution in the oceans will come from rivers since the collection of waste at sea is complex, not to say impossible. The expedition organised by the Tara Ocean Foundation **"Micro-plastics 2019" carried out on nine major European rivers, including the Rhone, showed that 100% of rivers are polluted by plastics**, that the majority of plastics found are already in the form of micro-plastics, that are impossible to collect, and that micro-plastics are "pollutant sponges" with detrimental effects on the fauna of large rivers and oceans.

From this dramatic observation in 2019 **a partnership was launched between the Tara Ocean Foundation and CNR, driven by the common objectives of raising awareness and improving scientific knowledge on plastic pollution** for

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the preservation of the environment and the aquatic and marine biodiversity. The PLASTIC-RHONE scientific project complements this partnership to amplify and perpetuate commitments to fight against plastic pollution.

PLASTIC-RHONE, the world's first research project on plastic pollution in rivers

Plastic@Sea, that actively supports the "plastic transition", will launch its experimental project PLASTIC-RHONE to study the impact of plastic on the river. The research project will be conducted in close collaboration with a number of French regional and national scientific bodies*. The project will essentially be backed-up by two key players and long-standing partners for the preservation of the river Rhone:

• **CNR, sole operator of the Rhone since 1933** on the three missions linked to its concession (energy, transport, irrigation). In parallel, **CNR also operates the largest ecological restoration programme ever undertaken for a river in the world** to preserve the biodiversity of the Rhone.

• The **Rhone Mediterranean Corsica water agency**, a public establishment attached to the Ministry of the Ecological Transition, whose mission is to restore the good state of water and aquatic environments, and in particular of the Rhone river, the backbone of the large basin Rhone-Mediterranean hydrographic system.

The PLASTIC-RHONE research project will **begin on April 1, 2021** and will run for two years in three distinct stages:

1. **The spatio-temporal monitoring of plastic pollution (macro-, micro- and nanoplastics) at five strategic points along the Rhone.** The evolution of the GPS positions of these objects will be monitored in real time on a remote server for all connected objects. Samples of macro-waste will also be taken on the banks of the Rhone, according to protocols established at European level.

2. **Understanding the fragmentation of macro-plastics into micro- and nano-plastics in the river-sea continuum**. Plastic debris of different sizes (large and small microplastics) and with different degrees of ageing will be placed in traps along the river-sea salinity gradient.

3. **Estimating the flows of macro-, micro- and nanoplastics from the Rhone river to the sea**. Taking on board of field data and especially their variability with the different flows of the river aims at contributing to the calibration of theoretical models, but also at better predicting the flows of plastics throughout the year, and particularly during flooding events.

PLASTIC-RHONE was developed by Plastic@Sea and its partners with the requirement of fully integrating the local scientific community and focusing on the possibility of transmitting scientific learnings to the general public and to local institutions.

About CNR - www.cnr.tm.fr

CNR (Compagnie Nationale du Rhone) is the leading French producer of 100% renewable electricity and the multiple-purpose concessionaire of the Rhone from the Swiss border to the Mediterranean Sea: production of hydroelectricity, deployment of navigation and regional ports, irrigation and other agricultural uses. CNR places the energy and ecological transition at the heart of its land-planning action, and reconciles economic development, enhancement of the area, safety and security with the preservation of the environment.

CNR produces more than 15 TWh each year from its hydraulic, wind and photovoltaic mix. An energy expert in optimizing intermittent energies, CNR controls the entire value chain and plays a major role in European electricity markets. As a laboratory for the energies of the future, CNR innovates continually to promote a more diversified and decentralized French energy mix. CNR is a company with majority public capital (local authorities, Caisse des Dépôts). CNR's industrial shareholder is the ENGIE group.

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About the Rhone Mediterranean Corsica water agency - www.eaurmc.fr | www.sauvonsleau.fr

The water agency is a public establishment of the French State under the supervision of the Ministry of the Environment, whose mission is to restore the good condition of water and aquatic environments. In application of the polluter pays principle, it collects tax fees paid by all users: households, communities, manufacturers, farmers, depending on the volumes they take and the pollution they release. The money thus collected is reinvested in communities, industries, farmers and associations that act to improve the quality of water and the environment: improve sanitation systems, reduce pollution by toxic substances, save money and share energy, water, regain the quality of water from catchments degraded by diffuse pollution (pesticides and nitrates), preserve strategic resources for drinking water, restore the natural functioning of rivers, marine environments and degraded or threatened wetlands. The water agency acts within the framework of a 2019-2024 intervention programme which sets the main action priorities for a 6-year timeframe. The agency has an annual aid capacity of approximately € 440 million and employs 330 people.

About Plastic@Sea www.plastic@sea.com

Plastic@Sea is a young innovative company hosted by the Oceanological Observatory of Banyuls-sur-mer, one of the three marine stations of Sorbonne University. Created in 2018 by two academic researchers who are experts in plastic pollution, Plastic@Sea supports manufacturers in their "plastic transition" by evaluating the impact of their plastic products and by offering more environmentally-friendly solutions for the circular economy. The company also supports various public institutions in estimating plastic pollution levels in rivers or at sea, but also in identifying new biodegradable and non-toxic plastic alternatives. Plastic@Sea operates in an exceptional environment which enables the company to 1/ offer solutions using bio-based and biodegradable polymers in the marine environment; 2/ test the biodegradability of plastics under different aquatic conditions; 3/ test the toxicity of the final product under different natural conditions and 4 / replace toxic additives with environmentally friendly solutions. Plastic@Sea employs 12 people.

* *The project will also draw on the multidisciplinary expertise of various public laboratories specializing in the field of plastic pollution in aquatic environments: the company TENUM, the CNRS, the University of Toulouse (Laboratory of Molecular Interactions and Chemical and Photochemical Reactivities, IMRCP), the University of Perpignan (the Center for Training and Research on Mediterranean Environments, CEFREM) and Sorbonne University (Laboratory of Microbial Oceanography, LOMIC).*

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