



2017-2021

RACE FOR WATER ODYSSEY

A revolutionary boat,
a crucial mission for the oceans





2017-2021

RACE FOR WATER ODYSSEY

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Bringing hope to ocean preservation: solutions do exist

"This latest expedition demonstrates that real solutions exist for the preservation of the oceans. On the one hand, we're demonstrating that if we take action on land, it is possible to curb plastic pollution of the oceans, notably by integrating technology capable of transforming plastic waste into a marketable energy resource. In this way, we're creating a value chain for end-of-life plastic waste with environmental, economic and socially sustainable benefits.

On the other, we will be accelerating energy transition by demonstrating that a vessel powered by a mixture of solar-hydrogen-kite energies is capable of completing a 5-year expedition around the world."

Marco Simeoni

President of the Race for Water Foundation

"We are honored to be able to support Race for Water, an admirable project of Swiss origin dedicated to finding concrete solutions to preserve our most precious resource, water."

Marc A. Hayek

President of Montres Breguet SA

"The oceans lie at the heart of the United Nations' sustainable development goals. The Race For Water vessel's innovative hybrid solar-hydrogen propulsion system will accelerate the necessary energy transition. As such this is an essential project for the preservation of the oceans, our most precious resource."

Michael Møller

Director-General of the United Nations in Geneva

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THE RACE FOR WATER FOUNDATION

In 2010, Swiss entrepreneur, Marco Simeoni, created the Foundation in Lausanne and devoted all of his entrepreneurial fibre to the service of the oceans. With his passion for the sea, he decided in 2015 to launch a scientific and environmental expedition, the Race for Water Odyssey, to make the first one-swoop global assessment of our ocean's plastic pollution.

The conclusions were clear: 'plastic islands' do not exist. In effect, the idea of collecting plastic waste at sea turns out to be a utopian dream. Instead, in the middle of the oceans there is a 'soup' of microplastics that swirls amidst the oceanic gyres. "We very quickly realised that the solution lay back on land. It is absolutely essential to prevent plastic waste from reaching the oceans", Marco Simeoni explains.

On 9 April 2017, *Race for Water* set sail around the world on a new five-year odyssey to propose solutions for the preservation of the oceans. "In 2015, we were, in the final analysis, powerless against the sheer scale of the problem of plastic pollution of the oceans. With this 2017-2021 Odyssey aboard our mixed solar-hydrogen-kite-powered vessel, we want to demonstrate that sustainable solutions for ocean conservation do exist thanks to innovative technologies."

Our missions



To contribute to the advancement of scientific knowledge about the plastic pollution of the water



To alert decision-makers, raise public awareness and educate the young generations



To promote and implement solutions with lasting economic, environmental and social benefits



Joint interview with Marco Simeoni, President of the Race for Water Odyssey, and Marc A. Hayek, President of Montres Breguet SA, title partner to the Odyssey

What is your vision of the major threats that the humanity is facing at this day and age?

Marc A. Hayek: The environmental impact of human activities cannot be underestimated. Corporate social responsibility cannot be taken lightly. Everything we do today has an outcome for future generations, and this message is important in all areas of human life.

Marco Simeoni: There is too big a social divide, with the gap constantly widening between developed and emerging countries, where globalisation takes place to the detriment of local populations and the environment, with egocentrism at the heart of our concerns.

What do oceans represent for you?

M. A. H.: The ocean for us is a constant source of inspiration.

M. S.: Life, freedom, adventure, discovery, our future.

What were the reasons for Breguet to join "Race for Water"?

M. A. H.: Leading a brand with a heritage originating from 1775, we make watches in a traditional way and all our watches are crafted by hand. These are mechanical timepieces built to last for generations, so we take a long-term perspective and it makes sense to us to care for the legacy that we will leave to our children, the future of our planet. Water is a precious and indispensable resource, and the mission to preserve it resonates strongly with all of us.

In your view, how can we build a future that is more respectful of our planet?

M. S.: I have confidence in the future generations and in new technologies favouring the environment. Furthermore, I believe that we have to revise our capital-intensive model to come up with circular economy concepts, taking into consideration the environmental, social and economic impact. A circular economy where nothing is thrown away any more and everything is recycled taking inspiration from what exists within the natural ecosystems and from what nature can teach us.

Transforming plastic waste into energy is a solution for plastic pollution of the oceans which the Foundation defends. How is such an approach innovative and beneficial?

M. S.: What attracts me to this approach is that it is inspired by what nature does constantly. It leaves no waste behind it, reusing all its resources in the best possible way, so why doesn't man do the same? Transforming waste to recover it forms part of this approach, which is essential to our survival.

The Race for Water Odyssey consists of a five-year circumnavigation of the globe on a vessel powered solely by renewable energies. What does that mean to you?

M. A. H.: We are proud and pleased to be able to support Race for Water, a Swiss project making a significant international contribution and demonstrating that concrete solutions exist for the preservation of the ocean worldwide.

M. S.: Sharing, feeling, touching and seeing what is happening on the ground, is about understanding and hence opening your mind to ways of finding suitable solutions.

Tell us more about Breguet's involvement into the partnership?

M. A. H.: The name of Breguet is known as that of a watchmaker to the French Royal Navy, the title received in 1815, at the time when marine chronometers allowed the ships to calculate longitudinal position at sea. Today, we are proud that the name of Breguet, the inventor, will be associated with an important cause to save the oceans thanks to modern cutting-edge solutions. We will contribute to raising awareness about this important issue and bring it to the global stage.

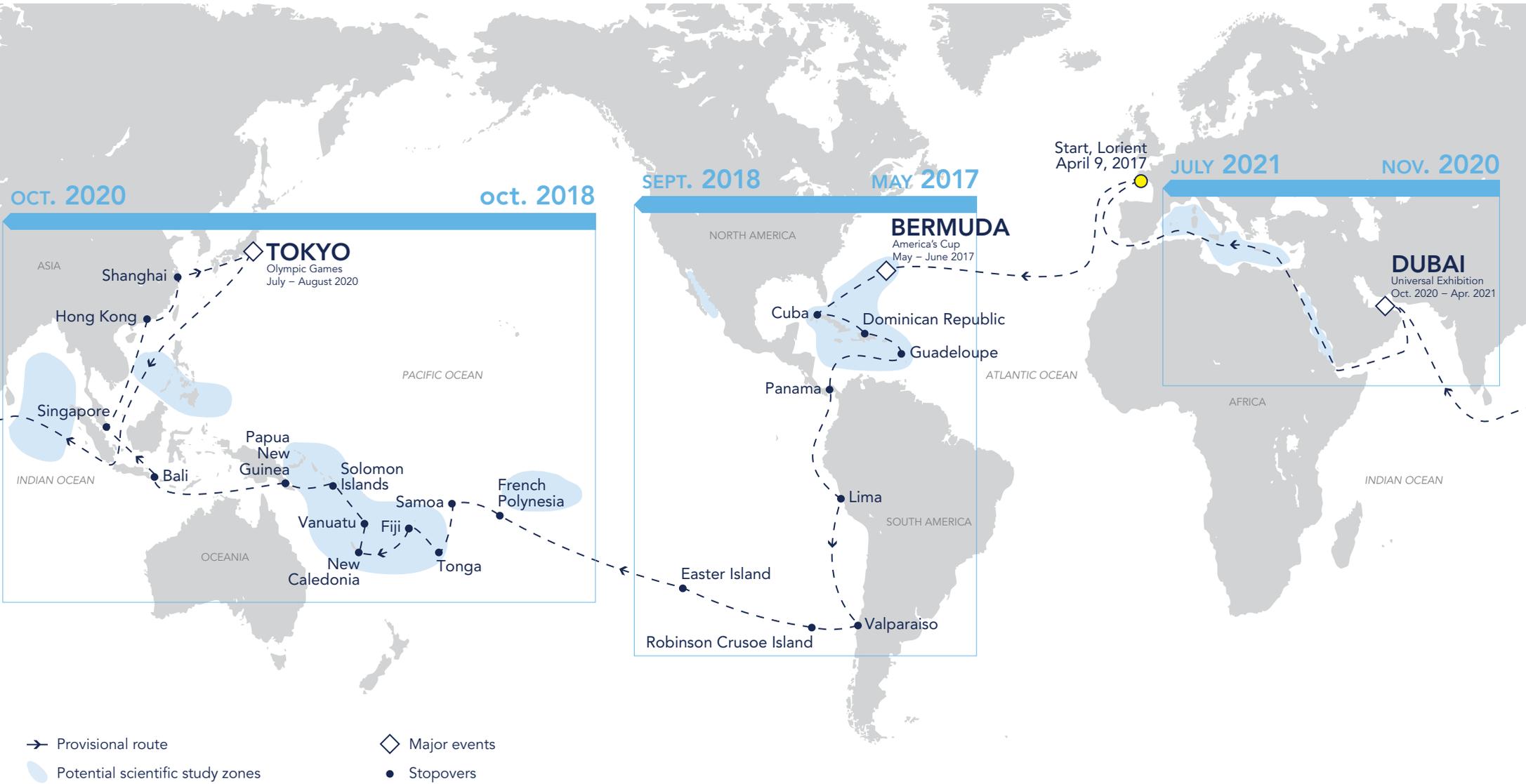
M. S.: The Breguet firm is a global reference in the domain of timepieces. Its commitment alongside the Race for Water Foundation for the next four years is a powerful sign of its involvement in the cause to conserve the oceans. This collaboration comes as a wonderful acknowledgement for the Race for Water teams who work on all the seas of the globe on a daily basis. Through this partnership, the influence our actions have will be further broadened, which is something we're absolutely thrilled about.

THE RACE FOR WATER ODYSSEY 2017-2021

For 5 years, the *Race for Water* vessel is circumnavigating the globe with the following objectives:

- ◇ To participate in some major international events to educate as many people as possible about the urgent need to conserve the oceans

- Visiting islands and large coastal towns, both victims and sources of the plastic pollution of the oceans, so as to raise awareness among local populations and offer solutions to prevent plastic waste from reaching the waterways
- Welcoming guests aboard scientific missions to develop an understanding of the consequences of marine plastic contamination



Race for Water a committed team



*"Tangible solutions are needed to solve the problem of ocean pollution. Race for Water is giving us hope. To be ambassador and co-skipper aboard such a vessel, albeit only intermittently, on such a **pioneering expedition in terms of the energy mix**, is exactly the kind of experience and challenge I like to tackle!"*

Gérard d'Aboville

Race for Water Ambassador



The Race for Water teams

Sailing the first vessel powered by a solar-hydrogen-kite energy mix is a technological feat, which has required the support of numerous engineers, professional sailors and experienced technicians.

Though the crew has very specific roles aboard — captain, second in command, engineer, steward —, on shore these same people take on the role of ambassadors of the Race for Water Foundation. They share their observations about plastic pollution with as many people as possible and raise awareness about the fact that there are solutions for preventing this waste from entering the waterways and hence the oceans.

Men and women with a great variety of talents, all gathered together around the same passion: the oceans.

Marco Simeoni, expedition leader

Jean-Marc Normant, captain and technical director

Pascal Morizot, captain

Anne-Laure Le Duff, second in command

Annabelle Boudinot, second in command

Martin Gavériaux, on-board engineer

Basile Prime, on-board engineer

Anne Le Chantoux, sailor

Margaux Chalas, steward

Yoann Lavarec, steward

Franck David, director of operations

Camille Rollin, "Program Act" project manager

Frédéric Sciacca, chief technology officer

Kim Van Arkel, scientific advisor

Virginie Caron, stopover manager

Peter Charaf, media content manager

Caroline Muller, press relations



Atlantic Analysis
April 2017 to February 2018

6

stopovers

89

days of navigation

8,757

miles covered since Lorient

15

researchers of 6 different nationalities

1,450

children hosted aboard

3,740

official guests including 140 political decisionmakers



2

THE LOW-DOWN ON OCEAN POLLUTION

In 2015, Race for Water completed the 1st odyssey to explore, understand, identify and raise awareness

The first Race for Water Odyssey set sail on 15 March 2015 from Bordeaux in France. This expedition aimed to visit beaches on the islands situated within a radius of 5 oceanic gyres and beyond to get the overall low-down on the plastic pollution of the oceans and underline the consequences of the latter on populations. This was possible in a record time of less than 300 days thanks to a racing trimaran, the MOD70 *Race for Water*.

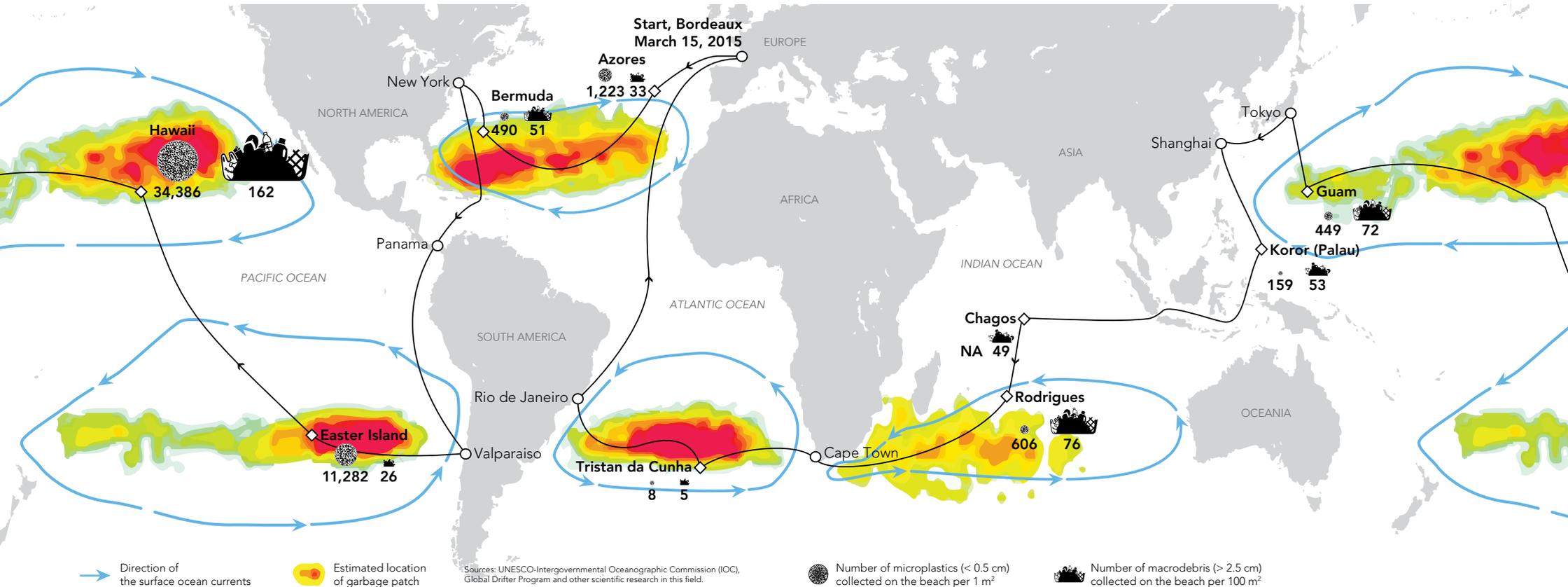
The first observations communicated are clear and alarming: plastic is everywhere, in frightening proportions and essentially in the form of micro or even nanoparticles, reducing the chances of being able to rid the oceans of this waste. However, it is necessary to stop the haemorrhage and tackle the problem at source, on land, preventing waste from ever reaching the oceans.

“This expedition proved to be a fine human, social and scientific adventure. These 9 months were challenging at times, but all the data and knowledge acquired, all the enriching encounters we got the chance to make, represent an absolutely essential asset in our bid to effectively pursue the struggle against plastic pollution of the oceans,” said Marco Simeoni, expedition leader and President of the Race for Water Foundation at the finish. “The Race for Water Odyssey is only the start of a long-term project. It’s a springboard, which has enabled us to understand and outline how to take things forward to come up with practical solutions. Following the Odyssey, our observation is clear: plastic pollution affects every region of the world and it is everywhere. We need to take action upstream and prevent the plastic from entering the waterways by favouring the recovery of waste.”



Race for Water Odyssey 2015

The low-down on ocean pollution



→ Direction of the surface ocean currents

Estimated location of garbage patch

Sources: UNESCO-Intergovernmental Oceanographic Commission (IOC), Global Drifter Program and other scientific research in this field.

Number of microplastics (< 0.5 cm) collected on the beach per 1 m²

Number of macrodebris (> 2.5 cm) collected on the beach per 100 m²

Gyres or vortices: Gyres are massive swirls or vortices of water create by the wind and marine currents, within which plastic waste moving about the oceans clumps together and accumulates.

Contrary to popular belief, the gyres are not compact areas of waste accumulation rather they are non-localised zones of pollution with stronger concentrations of plastic microparticles than in open waters. Floating a few centimetres below the surface of the water, plastic pollution can be virtually invisible to the naked eye and not identifiable by aerial photos.

Categorisation of plastic waste:

- macro-waste (>2.5 cm)
 - meso-waste (5 mm – 2.5 cm)
 - micro-waste, measuring less than 5 mm.
- This micro-waste is either tipped as it is into waste water, so-called 'primary' microplastic (polyester fibres, plastic micro-particles contained in cosmetic products), or comes from macro-waste which, over time, disintegrates via chemical (ultraviolet radiation, oxygenation), physical (wind, waves) or organic degradation.

9
months

17
stopovers

32,000
miles covered
across 3 oceans

30
sampling
beaches

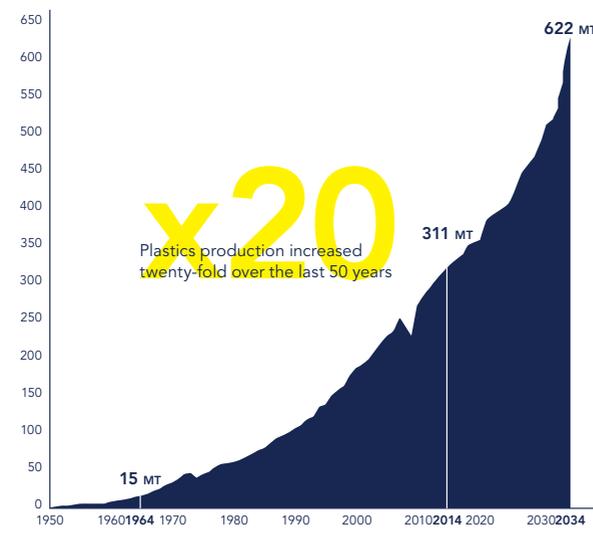
15,420
pieces of macrowaste
collected

192,250
micro-particles
collected

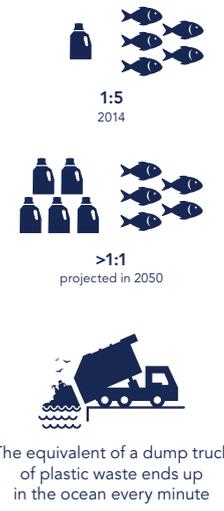
The waste collected is being analysed by the Ecole Polytechnique Fédérale de Lausanne, Bordeaux University and Fribourg University.



Plastic production worldwide
in million metric tons



Ratio of plastics to fish in the ocean
(by weight)



Uncontrolled growth of plastic production

By continuing with the existing system of production, use and disposal of plastics, the ocean will contain more plastic than fish (by weight) by 2050. It is estimated that there will be more plastic produced in the next ten years than has been produced since the beginning of its industrialisation in the 1950s.

Study carried out by the McKinsey firm and the Ellen MacArthur Foundation, January 2016.

The oceans are our planet's biosphere

71% of the earth's surface is made up of ocean. But it is the volume that is interesting: the average depth is 3,800 metres, so if you look at the volume of the ocean, it represents 99% of the volume available for life in the biosphere.

Gilles Boeuf, biologist and professor at the Pierre and Marie Curie University - RFI Radio, March 2017.

3

FROM PLASTIC WASTE TO AN ENERGY RESOURCE

Having travelled the world's seas, the Foundation set out in 2016 to find solutions to prevent plastic waste from leaking into the ocean. "An idea occurred to me during a conversation with a street collector," Marco Simeoni explains. In many cities around the world, collectors are paid to collect aluminium, glass, cardboard and even PET, so the infrastructure meets the cost of them (recycling, combustion, etc.). However, they do not pick up the plastics because they have no market value. "Together with our industrial partner, ETIA, we have come up with a technology capable of transforming end-of-life plastics into energy, be it gas or electricity," Simeoni says. "The sale of this energy will allow us to pay the street collectors, which will encourage them to pick up end-of-life plastics," explains Marco Simeoni. The machine for converting plastic waste into an energy resource uses a unique and patented gasification process. The first machine will be implemented this year in collaboration with SUEZ to demonstrate its energy yield and its environmental performances.

At the same time, various projects are being studied across several islands and coastal towns to illustrate the environmental, economic and social benefits of the value chain that the Race for Water Foundation wishes to create for end-of-life plastics.

This innovative technological approach also demonstrates that end-of-life plastic waste can be an additional resource in the energy transition.



*Waste is the problem
and the solution*

How the machine works

All organic matter contains energy, called calorific value. For example, when wood is burned, it emits energy that is felt in the form of heat. Plastics also have high energy potential.

A patented process, called Biogreen®, enables the exploitation of the calorific values of materials such as biomass, plastic and even fuel residues through various reactions such as pyrolysis, torrefaction and gasification. Pyrolysis is achieved by heating organic material at a high temperature in the absence of oxygen. Beyond a certain temperature, the material decomposes chemically and is transformed into other products; gases, liquids or solids.

In order to recover the calorific value of plastic, mainly in the form of a gas, a simple pyrolysis reaction is not sufficient. It is necessary to take things further through pyrolysis at very high temperatures, still without oxygen. This heat treatment makes it possible to break up the carbon chains that make up the plastic. This oxygen-free carbonisation leads to the production of a synthesis gas called Syngas, mainly composed of methane and hydrogen.

During this Biogreen® process, high-temperature pyrolysis is carried out using an

innovative and unique piece of equipment, the Spirajoule®. This long screw pushes the plastic material into a sealed compartment while heating it by Joule effect. Thus, the material travels at a constant speed within the apparatus and the temperature of the screw can be controlled very precisely up to temperatures of 800 °C. This makes it possible to perfectly adjust the duration and the temperature according to the material due to be treated and to the final product desired. In the case of a treatment at 800 °C, the objective is to maximise the yield of Syngas and to achieve the most comprehensive transformation of the plastics as possible.

The Syngas is then cleaned through various stages of filtration, purification and condensation. The goal of this crucial step is to remove dust, fine particles, tar-like fatty acids, condensable gases, as well as undesirable molecules such as chlorine and other pollutants. The gas is thus purified, non-toxic and can be used as fuel in engines or turbines to generate electricity. It is also possible to extract and resell hydrogen or methane fractions directly.

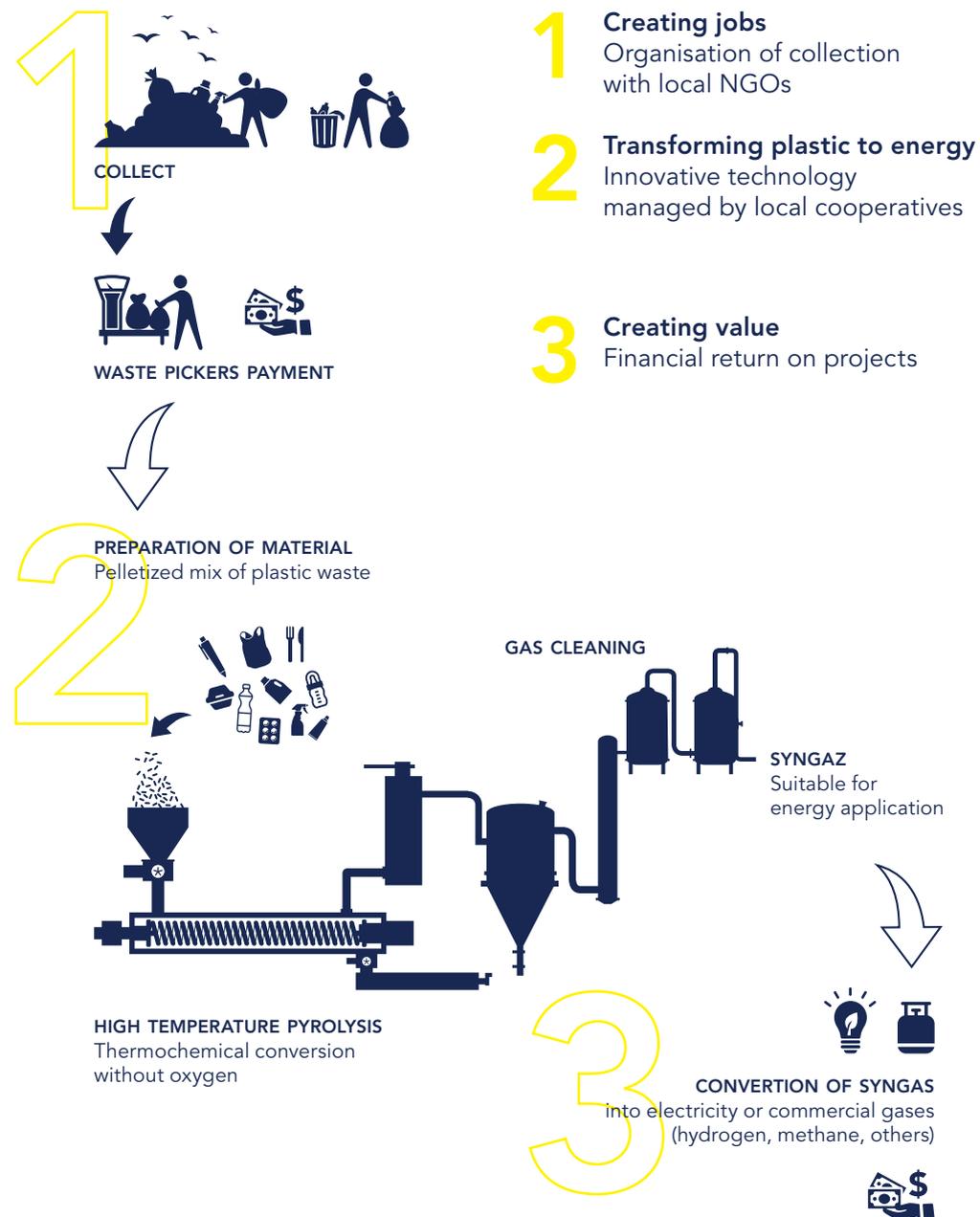
The solid and liquid residues resulting from this transformation are optimised since the gaseous fraction equates to up to 80%.

These small and medium capacity technical solutions encourage decentralised waste management and energy production. And such business models, already trialled in some Nordic countries, are recognised for their efficiency, as well as their social and environmental benefits.

Installing the machine

Compact, modular and mobile, it takes only a few weeks to install a unit that can process 5 to 12 tonnes of used plastics per day. Several machines can operate at the same time in order to achieve greater processing capacities. The Biogreen® plant meets the strictest environmental standards and is CE certified.

A value chain for end-of-life plastics



Strategic objectives

We wish to have our model be replicated on a global scale and to have a lasting impact in the following three areas:

- 1 Environmental**
Considerably reduce the annual quantity of plastic waste, which reaches the oceans and thus protect human health and the survival of species
- 2 Economic**
Give value to “wild” plastic waste as a resource and produce energy for local populations
- 3 Social**
Provide jobs and additional income to street collectors



The required technologies exist



*“Today the ETIA company is extending its development to the manufacture of waste-to-energy processes to deal with residual waste and plastics so as to convert them into renewable energies particularly suited to delocalised ecosystems (gasification process for the production of electricity, methane and hydrogen). Therefore it is only natural that ETIA was keen to join forces with the Race for Water Foundation to **develop industrial and economic solutions responding to the threat of pollution of the oceans** from the cascade of used plastics, **as well as the growing energy needs** of the islands and coastal towns directly impacted by this pollution.”*

Olivier Lepez
Director-General of ETIA

*“When “Plastic to Plastic” material recovery is not viable on a technical or economical level, **pyrolysing the plastics to extract the energy from them is a relevant solution in the sense that access to electricity is crucial for the majority of emerging economies or island economies.** From this point of view, the technology developed by ETIA satisfies the demands of this new procedure in the optimum manner. We share the same vision as the Race for Water Foundation and we complement each other in our approaches and our expertise to reduce plastic pollution, with sustainable environmental, social and economic benefits.”*

Dominique H elaine
Director of waste management partnerships within the Suez group’s innovation department





4

ACCELERATING ENERGY TRANSITION



A future
without fossil fuels



*“The Race for Water Foundation is demonstrating that a zeroemissions future is not a utopia — it is already becoming reality. UN Environment is proud to support this innovative vessel’s round-the-world Odyssey. **This adventure will demonstrate the power of renewable energies and stimulate the search for new solutions** to conserve our oceans against the threat of plastic pollution.”*

Erik Solheim

Director of the UN Environment Programme



Aware that plastics are not the only source of pollution the ocean has to face, Race for Water is committed to energy transition. "For this latest Odyssey we're navigating the waters with a vessel powered solely by clean energies: sun, wind and hydrogen", comments Marco Simeoni. It's essential to demonstrate that navigation using clean energies is possible and that energy transition is a reality.

The future: the energy mix

Obtaining energy using solar panels is a tried-and-tested technology. However, there are still some limitations regarding batteries. The current models are not able to store energy for several weeks without loss. Furthermore, they are bulky and heavy, with a limited lifespan of around five years.

2 Self-piloting towing kite spanning 40 m² deployed at an altitude of 150 m

A range gain
Makes boat speed of 5 to 8 knots possible

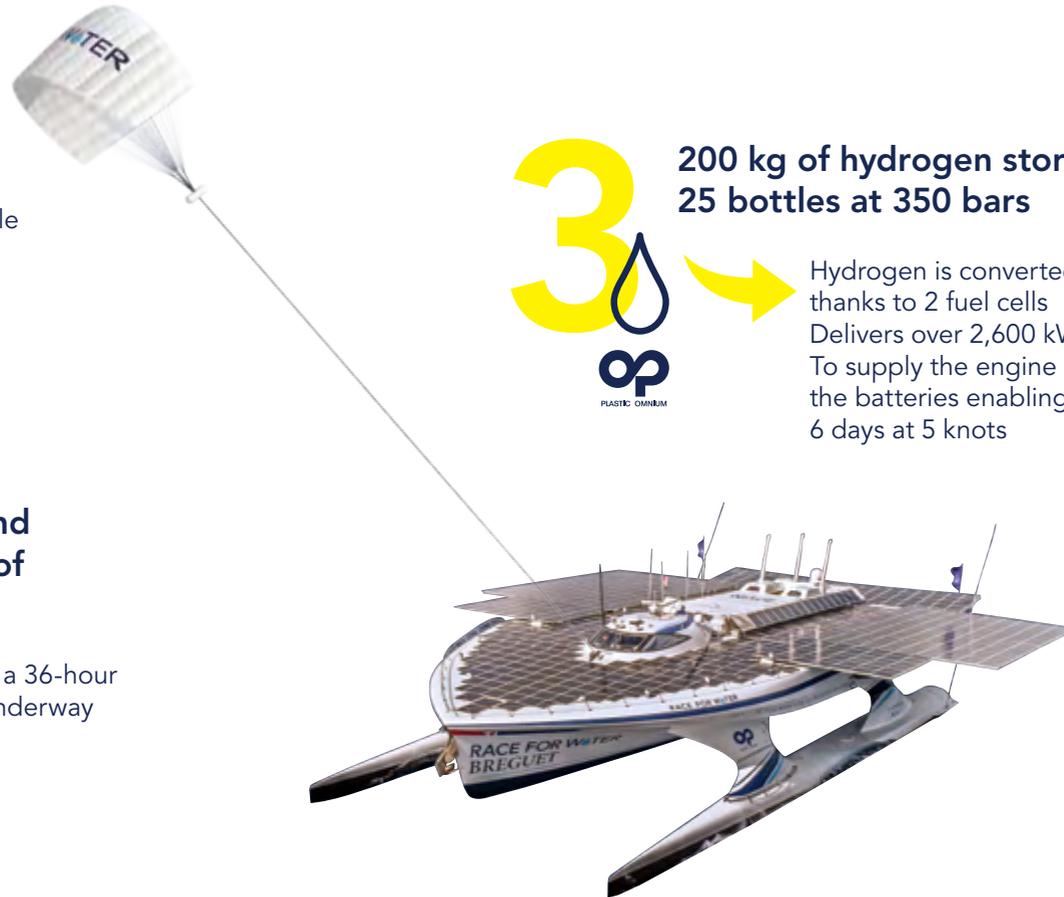


1 512 m² of solar panels and storage in the 8 tonnes of Lithium-ion batteries

The batteries provide a 36-hour energy range when underway

3 200 kg of hydrogen stored in 25 bottles at 350 bars

Hydrogen is converted into electricity thanks to 2 fuel cells
Delivers over 2,600 kW/hr of electricity
To supply the engine or recharge the batteries enabling a range of up to 6 days at 5 knots

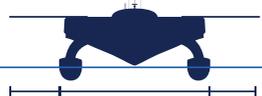

5 CREW AND UP TO 11 GUESTS WHEN OFFSHORE SAILING

250 M² INCLUDING **90 M²**
OF LIVING SPACE OF JOINT WORKING SPACE


100 TONS


5 KNOTS
AVERAGE SPEED

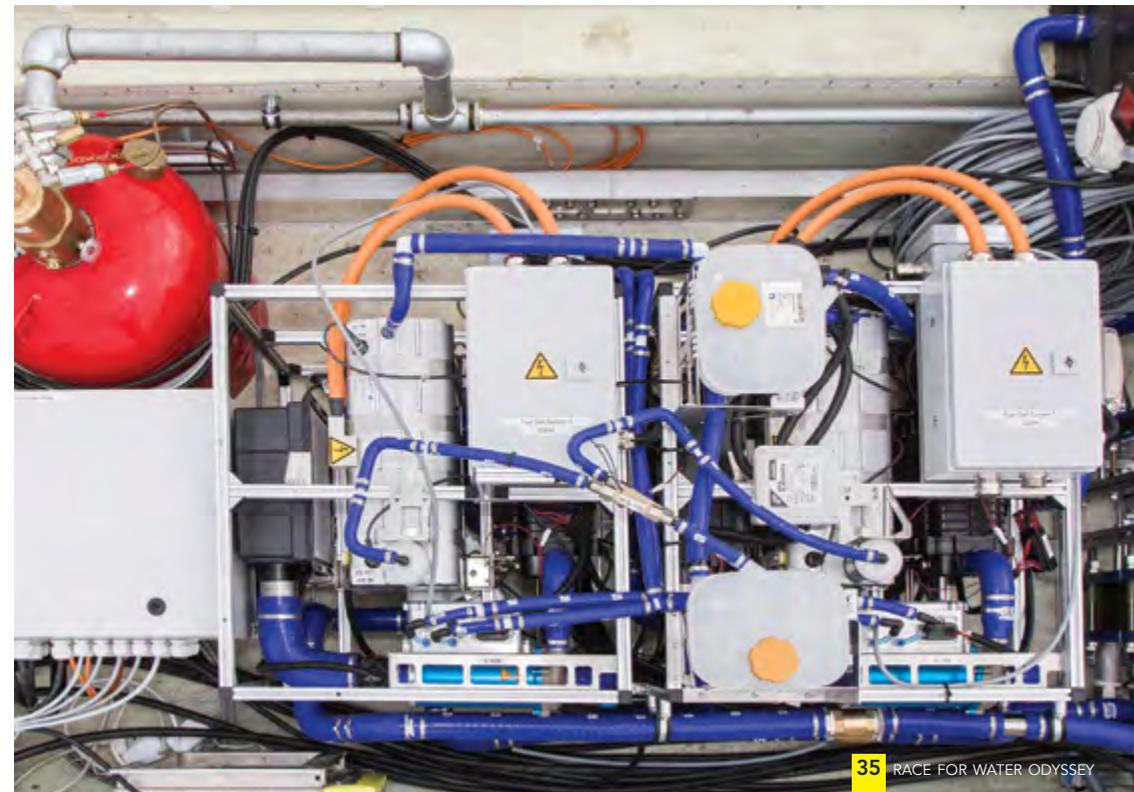
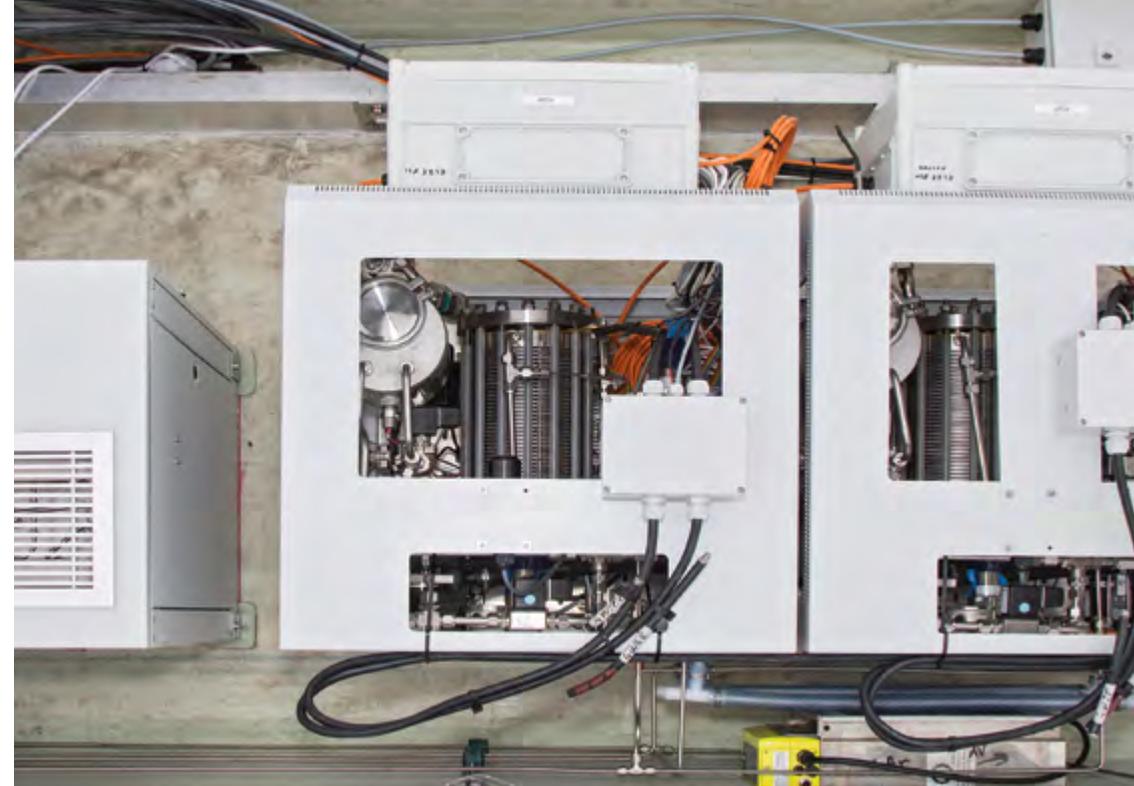
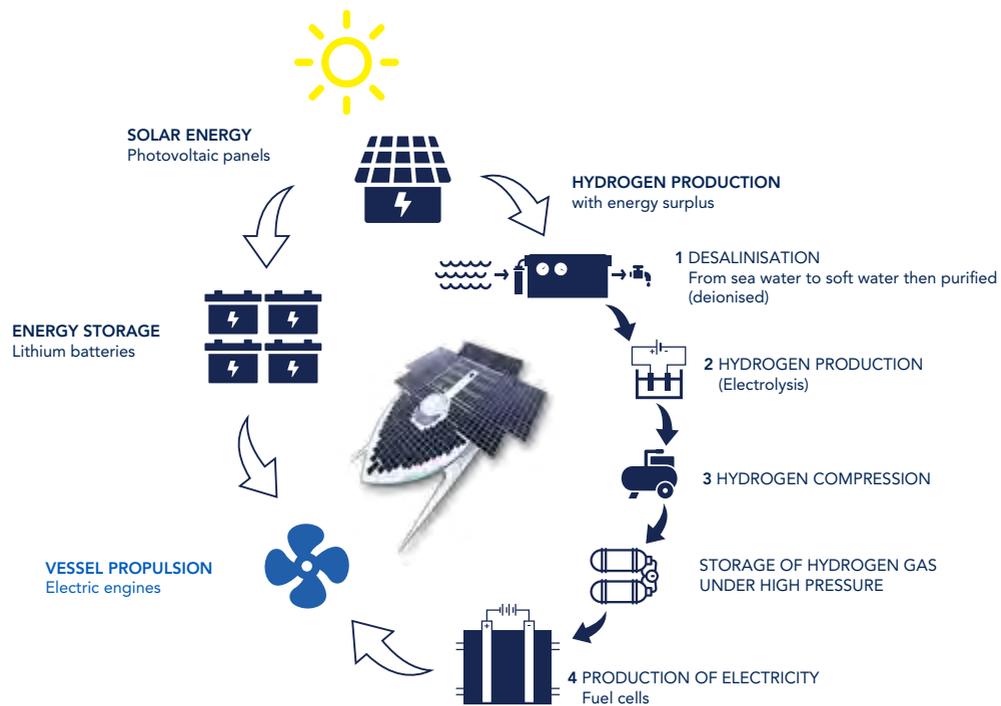

8 KNOTS
MAXIMUM SPEED


15.8 TO 23 M


31 TO 35 M
6.3 M
1.8 M

How the hydrogen and its fuel cell work

- 1 Seawater is pumped, desalinated and stored on board.
- 2 This freshwater is then purified before being electrolysed using the surplus photovoltaic energy available.
- 3 The electrolyser produces hydrogen at 50 bars, which is then dried, compressed at 350 bars, and then stored in specially-dedicated cylinders. Nearly 200kg of hydrogen can be stored in this way.
- 4 The hydrogen will be reconverted to electricity through the two 30 kW fuel cells, as required. These fuel cells maintain the charge level of the batteries or directly power the electric engine (propellers).

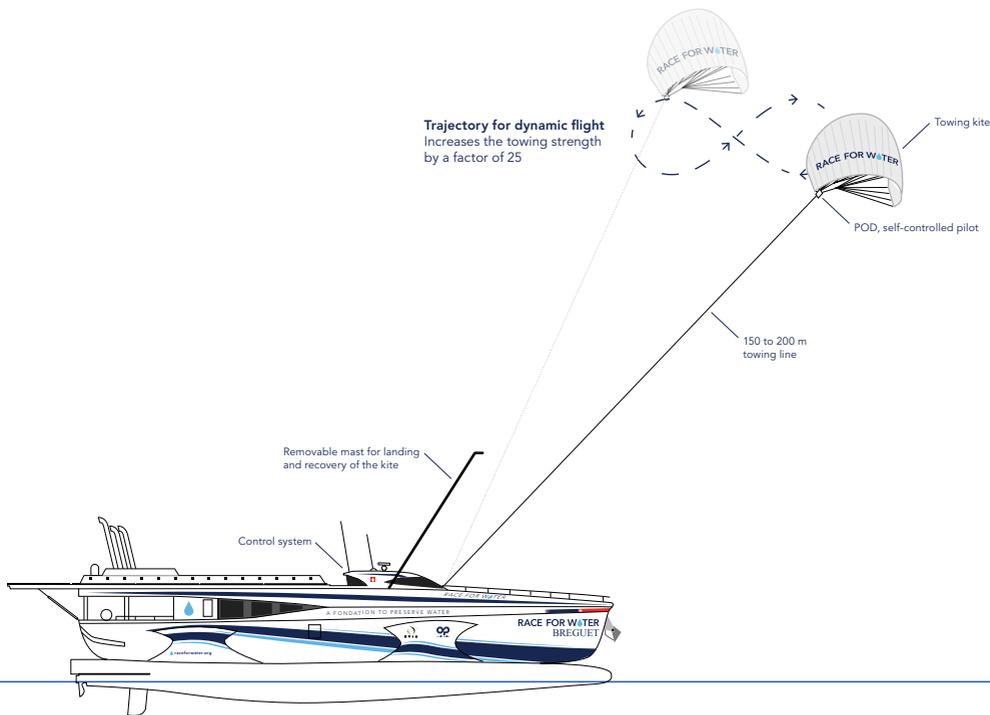


How the towing kite works

The Skysails Yacht company is developing a latest generation towing kite with a surface area of 40 m², which is deployed to a height of 150 m, the equivalent of 500 m² of sail area at sea. It is an innovative, high-performance solution, which is managed automatically and enables greater range whilst increasing the speed of the vessel in certain conditions.

The system comprises 3 main elements

- 1 A kite wing with its towing line
- 2 A launch and recovery system
- 3 A control system ensuring automatic operation

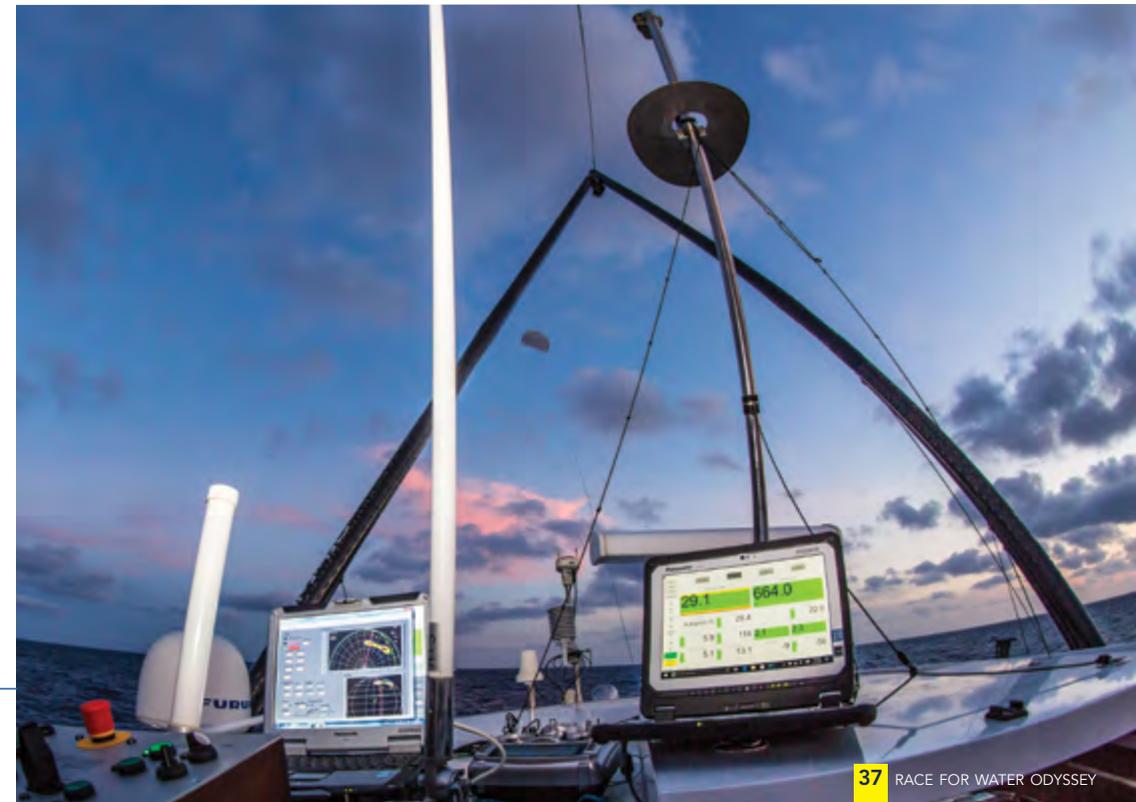


Instead of a traditional sail hoisted on a mast, large towing kites are used to propel the catamaran along. Their shape is similar to that of a paraglider. This kite is manufactured from very solid, waterproof fabrics.

The towing kite can operate at altitudes of 150 to 200 metres where the strongest and most stable winds prevail. The towing stresses are transmitted to the boat by means of a high-resistance line made of synthetic fibre.

The launch and recovery system is set up on the foredeck and manages the hoisting and deployment of the kite wing. For the launch, the wing is hoisted to the top of a mast. The wind then inflates and deploys the sail, which can then be released using a towing line. A winch unwinds the towing line until it reaches operating height. Recovery is done in the reverse order.

The launch and recovery procedures take 20 minutes each in total.





"I'm delighted to be able to bear witness to another Swiss project, which **symbolises energy transition in a concrete manner**. The Race for Water vessel's propulsion, which is based on the combination of solar energy, hydrogen and a traction kite, will set an **example in the history of our clean future**. This solution put forward by Race for Water is at the forefront of innovation, but remains accessible to all as they've chosen to base it on commercial technologies."

Bertrand Piccard

Initiator of the Solar Impulse project

"The founding principles of the Blue Economy? In nature there is no waste. That's the first principle: everything is used. However, this recycling sticks to a few rules. A leaf is converted into humus, the humus is enriched by other elements and together they provide the nutrients a tree needs to make new leaves. However, a leaf doesn't become a new leaf, it's a much more complex system, producing nutrients, materials and energy but no waste. Secondly, in nature there is no unemployment: every element makes a contribution according to their capabilities. What generosity! Thirdly: each element is constantly breaking new ground and nothing is fixed in place. It's an incredibly flexible operation, which constantly strives to improve itself. There is no good or bad: anything living tries to improve itself. This is the basic philosophy for me: always striving for better. Final principle: proximity, namely using what is available locally. The reproduction of these four principles at work in nature forms what I've called the blue economy. It consists of creating surplus value locally. Its aim is to satisfy the needs of the whole planet, all the time, and not just those of the human being. The ZERI* network's commitment is strong; we hope to work with Race for Water and contribute to its mission **to reach common objectives: to change the reality around us.**"

Gunter Pauli

Prof. Dr. h.c.



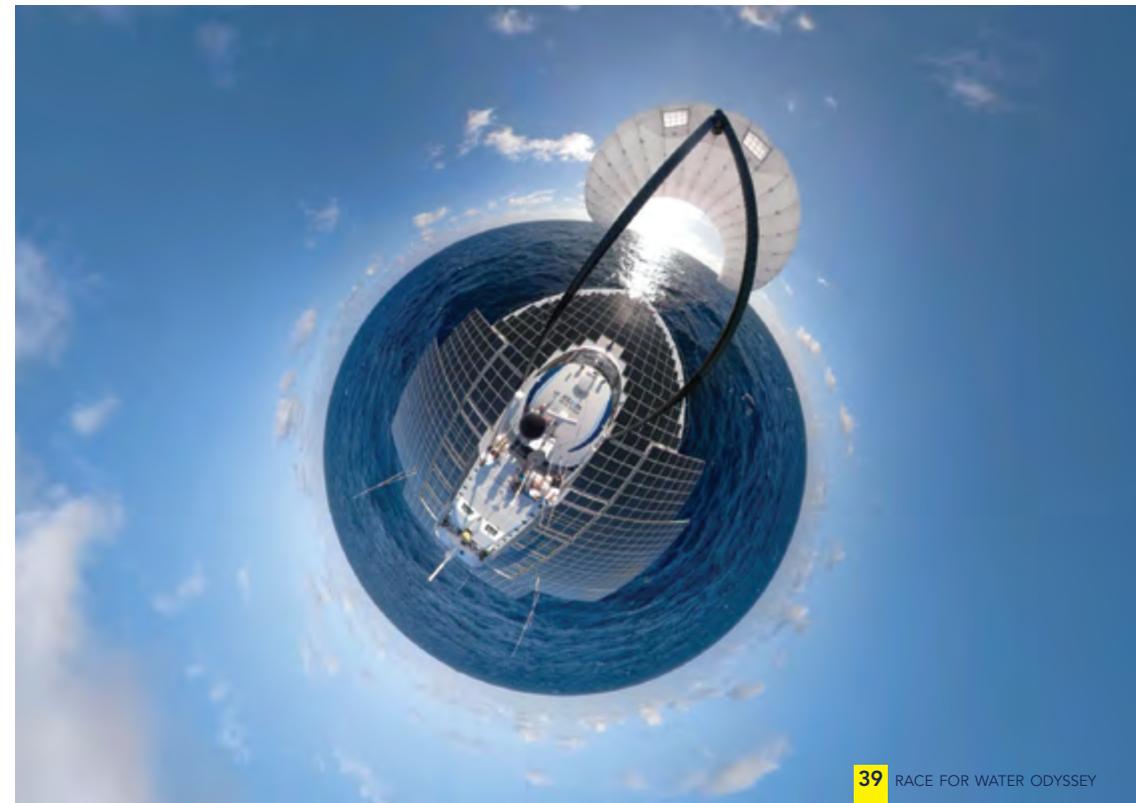
* ZERI: people and associations seeking solutions to global challenges, with the shared belief that we have the ability to satisfy all our essential needs with what we have at our disposal on a local level, provided we make the right connections between ideas and uses.

Commercially-available technologies

These solutions developed with partner enterprises can be used by anyone who, like us, wishes to accelerate energy transition.

A model for islands

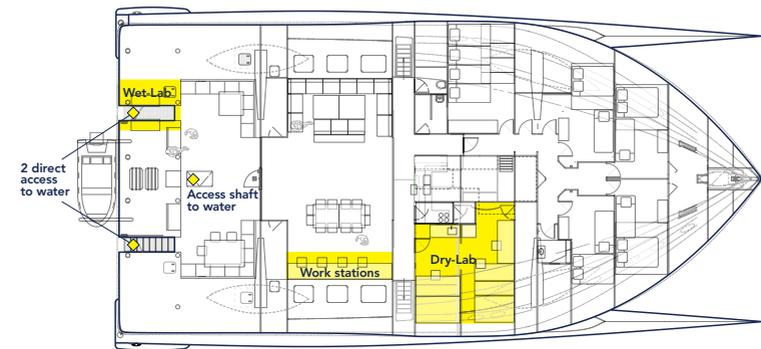
Islands, which are particularly affected by plastic pollution, are currently highly dependent on fossil fuels. Indeed, it is with the fuel supplied at great expense by freighters that they produce the vast majority of their electricity. "The Race for Water vessel, powered solely by the energy of the sun, water and wind, is a model of the energy transition for islands, which have these same natural resources at their disposal," explains Marco Simeoni. "In addition, throughout the Odyssey 2017-2021 the vessel will promote a technology capable of transforming plastic waste into energy resources, thus providing an additional resource to the energy mix."



5

CONTRIBUTING TO SCIENTIFIC RESEARCH

Adapted for scientific expeditions, the *Race for Water* vessel was completely redesigned in 2016 to provide optimal working conditions on board. Thanks to her 90 m² dedicated to research, her stability and her self-sufficiency in renewable energy, this vessel can play host to teams of five to seven researchers, as well as students.



The assets of the *Race for Water* vessel

- 1 Silent propulsion, convenient for observing marine fauna
- 2 Low-speed travel, suitable for taking samples and measurements
- 3 Lack of contamination by fuel or noise pollution when taking samples
- 4 Two points of direct access to the sea from the boat's aft deck: easy access for sampling

The vessel's layout

More than 90 m² of flexible workspace.

Optional wet laboratory and winch for off-shore sampling and processing in immediate proximity.

Independent air-conditioned dry laboratory on board, equipped with a fridge, freezer and potentially an oven.

Large shared working space with various fully-equipped workstations.

Stairs with a platform for 2 divers.

Other equipment on board

A 4.5 m rib, with 40 hp engine

Three sets of diving equipment (suits + tanks)

Navigation systems & software

BATOS -Météo France weather station

High-resolution GPS locating system

Seawater temperature-measuring equipment

Scientific partnerships



JPI Oceans

From 2017, research teams from the European JPI Oceans programme have joined in the Odyssey and made use of the *Race for Water* platform to carry out part of their studies. Established in 2011, JPI Oceans is a strategic programme coordinating marine research, which is open to European member states and associated countries.

EPHEMARE

Directed by Professor Ricardo Beiras (Vigo University, Spain), the EPHEMARE project studies the ecotoxicological effects of microplastics on marine ecosystems (pelagic and benthic).

Team: 9 European scientists from France – Bordeaux University; Belgium – Antwerp University; Spain – Vigo University; Italy – Marche Polytechnic University, the National Research Council (CNR) and the Institute of Marine Sciences (ISMAR).

Sampling: Seawater, sediment, plankton and any other marine organism

Sampling zone: In Bermuda (Whale Bone Bay, Well Bay) in June and July 2017; then in Guadeloupe in October 2017 (Petit Bourg and Capesterre)

Sampling of plastic particles by the *Race for Water* team from Chile to French Polynesia for the “Plastisphère” project in 2018

A voluntary scientific project will be conducted aboard the *Race for Water* vessel within the context of the “Plastisphère” project by Dr. Linda Amaral Zettler and Dr. Erik Zettler, both researchers at the NIOZ, the Royal Netherlands Institute for Sea Research. This project aims to explore the communities associated with plastics in the South-East Pacific, a zone which has seen little sampling to date in terms of plastic pollution. The “Plastisphère” project will concentrate on

Among the joint initiatives launched by JPI Oceans, the “Ecological Aspects of Microplastics” programme brings together 4 projects around microplastics including EPHEMARE and WEATHER-MIC. Data analysis and other samples taken from the *Race for Water* vessel began in late January 2018 for WEATHER-MIC.

WEATHER-MIC

Led by Dr Annika Jahnke (UFZ Leipzig, Germany) and Dr Hans Peter H. Arp (NGI Norway), the WEATHER-MIC project aims to understand how microplastics age in the marine environment to gain a better understanding of their interaction with this same domain.

Team: Dr Hans Peter Arp and up to 9 other scientists have come aboard

Sampling: Sediment, plankton and various waste

Sampling zone: Samples taken along the coastline of Havana in Cuba

the DNA analysis of the organisms attached to the plastic particles to determine the entire microbial community living on these pieces of plastic. The *Race for Water* team will collect a set of data to contribute to this project through samples taken during the passage from Chile to French Polynesia. The samples collected will be conserved aboard before being analysed at the NIOZ.

Other scientific projects will be welcomed aboard the *Race for Water* scientific platform in the South Pacific.



*“For me the *Race for Water* platform represents the future and how the future should look. It’s an environmentally-friendly vessel, which sailed as far as Cuba with low carbon emissions and certainly a lot less than mine arriving by plane!*

*During this 5-year Odyssey, **Race for Water is carrying out important scientific work and raising awareness among populations and leaders to alert them to the problems linked to plastic waste and microplastics. The *Race for Water* team is trying to promote research and find solutions. The *Race for Water* catamaran is at the cutting-edge of technology and in the future I’d like to see more vessels like this one, along with increased international cooperation to resolve the problem posed by microplastics. I’m delighted and honoured to have been able to climb aboard and I’m very happy with our collaboration with the *Race for Water* Odyssey, WEATHER-MIC and NGI.”***

Dr. Hans Peter Heinrich Arp

Engineer at NGIOne, WEATHER-MIC project coordinator





We can carry out highquality work



*"Frankly, I'm delighted and I'm sure my colleagues are too! The Race for Water vessel is incredibly spacious and we carry out some high-quality work aboard, in collaboration with the on-board crew, who really got involved alongside us. **It's quite simply remarkable to be able to carry out oceanic studies without any environmental impact and in noiseless surroundings thanks to this revolutionary catamaran powered by clean energies.**"*

Bénédicte Morin

Lecturer at the Bordeaux University,
researcher on the EPHEMARE project



6

RAISING AWARENESS

While traveling around the world, the Race for Water Foundation hopes that the *Race for Water* vessel will be a venue for meetings and exchanges. We are rallying together the general public and opinion formers around the extreme urgency of ocean conservation, and plastic pollution in particular. We will raise awareness among as many people as possible through our traveling exhibitions, documentaries, public operations and mediation efforts.

Aware that change will take place thanks to the young generations, the Foundation has already welcomed over 1,450 children over the first 6 stop-overs. In this way, around sixty or so classes have visited the vessel and talked with the crew about the problem of plastic waste.



Pay attention to your waste

The rules of the 5 Rs

- 5** **REFUSE** the useless and **REDUCE** the needless in order to limit waste generation
- REUSE** and **REPAIR** what can be fixed to prolong product life
- RECYCLE** when possible and give a second life to everyday products

Our eco-friendly actions to preserve the oceans



If possible, I'm giving up single-use plastic bags.



I refuse products with excess packaging.



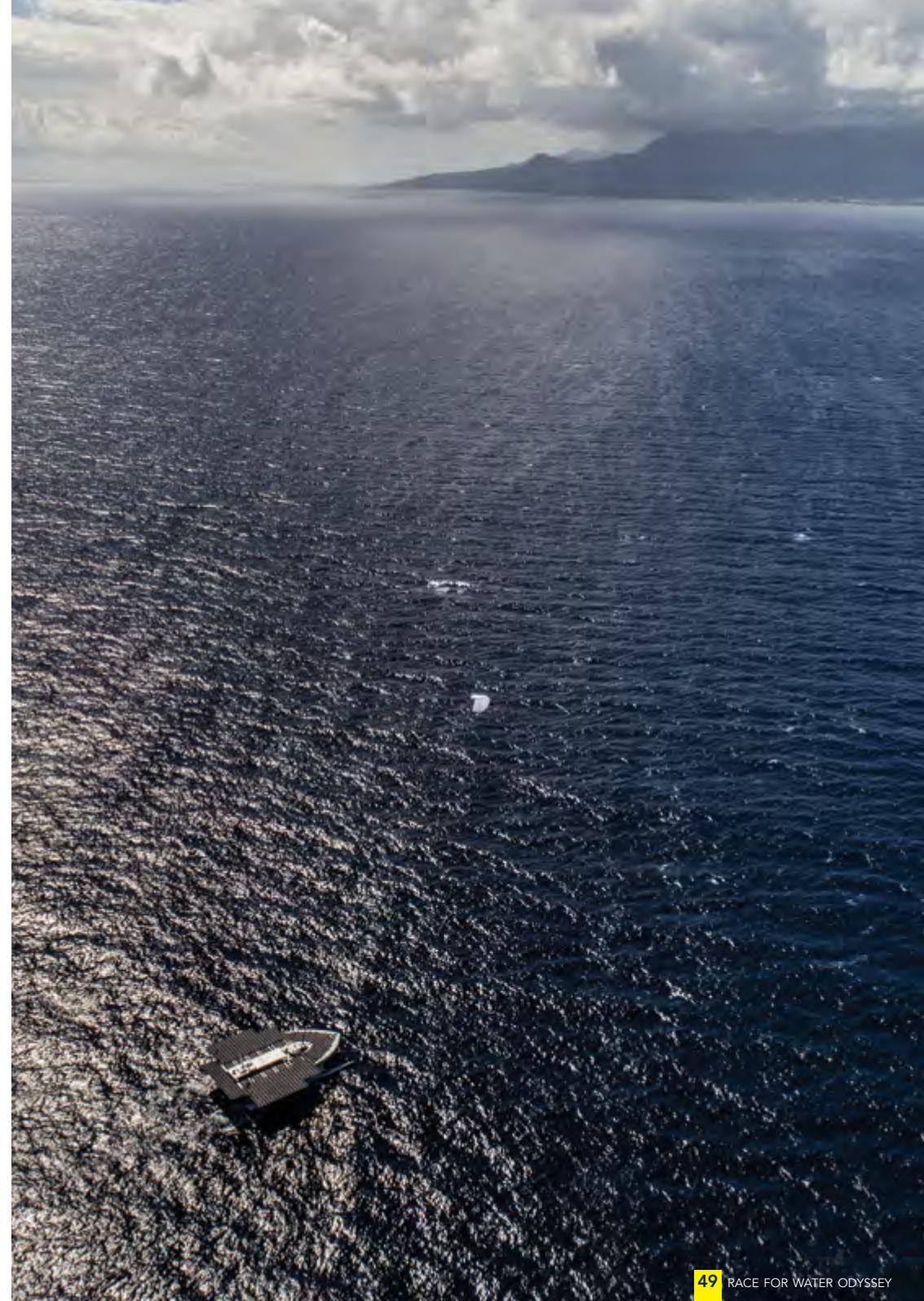
I keep a reusable bag within reach.



I do not drop cigarette butts or any other plastic waste on the ground or down the toilet.



I use a reusable water bottle.



Our Ambassadors



Zep
Artist



Tony Estanguet
Sports director



Gérard
d'Aboville
Sailor



Virginie Faivre
Freestyle skier



Stève Ravussin
Sailor



Carine
Camboulives
Windsurfer



Sarah Laura
Peyrel
Miss Earth Suisse



Piru Huke
(Mama Piru)
Ecological activist



Claude Thélier
Sailor



Aurélien Ducroz
Freeride skier



Michel
Desjoyeaux
Sailor



Eric Loizeau
Alpinist



Manu Bouvet
Windsurfer



Atsuko Quirk
Film-maker



Anne Richard
Actress



Loïc Forrestier
Sailor



Thomas Coville
Sailor



Alan Roura
Sailor



*I'm committed to the
conservation of the oceans*



*"As an Ambassador for the Foundation and sponsor of the Race for Water vessel I'm committed to the conservation of the oceans and the acceleration of energy transition. As an athlete, I believe that sport has a role to play in this transition. The Olympic Games and the Paralympic Games of Paris 2024 will share the same spirit as **the Race for Water's visionary and innovative projects.**"*

Tony Estanguet

Co-president of Paris2024 and Race for Water Ambassador



7

OUR PARTNERS



Title partner



Throughout his career, Abraham-Louis Breguet consistently demonstrated his exceptional mastery of time measurement. His strong involvement and his revolutionary developments earned him significant recognition and numerous honours. Renowned the length and breadth of Europe, Breguet found a particularly active admirer in Louis XVIII, king of France. In 1814, the latter appointed him a member of the *Bureau des longitudes* in Paris. This body created in 1795 by the National Convention was dedicated to the advancement of the various branches of astronomy and their applications to geography, navigation and geodesy. As an extension of this distinction, through an ordinance issued on October 27th 1815, Louis XVIII awarded A.-L. Breguet the official title of chronometer maker to the French Royal Navy.

This was the most prestigious title a horologist could hope to receive, given that the very concept of marine chronometry implied scientific knowledge. It also involved playing a crucial role for the country, as marine chronometers were of capital importance for fleets by making it possible to calculate ships' positions at sea.

Breguet Marine Équation Marchante 5887



As a tribute to Breguet's ties to maritime navigation, the Manufacture presents a masterpiece, the Marine Équation Marchante 5887. It features a tourbillon, a perpetual calendar and one of the rarest and most fascinating complications: the running equation of time. The Marine 5887 simultaneously shows both Mean and True solar time through two distinctive minute hands. The ingenuity of this spectacular model is accentuated by the unparalleled expertise of the artisans belonging to the House of Breguet. The front dial features two types of engine-turning, including a "wave" pattern specifically developed for this new creation. On the back, the bridges, visible through a sapphire caseback, have been delicately chased to depict in meticulous detail, the Royal Louis, a first rank vessel in the French Royal Navy.



About Breguet

Breguet, established since 1775, embodies watchmaking excellence and forms part of the European cultural heritage, brimming with history and emotions. Its creations have been owned by the world's most prominent individuals. Breguet's famed archives record every watch sold since 1787. The timepieces emerging from the Manufacture Breguet are works of art rendered unique by artisans' hand, and endowed with genuine soul. From the start, Breguet has woven close ties with science and astronomy. Breguet takes pride in offering exceptional timepieces, such as the Marine Équation Marchante 5887, a Grande Complication model that marks a new era for the contemporary Marine collection.

www.breguet.com

Official and technological partners



Plastic Omnium

A French manufacturing group, created in 1946 by Pierre Burelle, it is the world leader in car body parts, modules and fuel systems. In 2017, Plastic Omnium further reinforced its positioning as an electric propulsion protagonist with the acquisition of two companies including Swiss Hydrogen, partner to the

Race for Water Odyssey, specialised in the design and production of energy management and control solutions in fuel cell systems dedicated to mobility. (Further information at www.plasticomnium.com)



Etia

A French engineering group specialised in the innovation, equipment and processes involved in continuous thermal processing. The company designs and supplies factories treating biomass, food products and industrial waste and is highly prolific in the environment, agri-food and energy sectors. ETIA believes in a circular economy where

resources are circulated from one industry to the next, creating sustainable material and energy loops. ETIA has developed a unit for Race for Water that converts end-of-cycle plastic waste into energy. (Further information at www.etia-group.com)



SkySails Yacht

Founded in 2017, it is a technological leader of the market for automated towing kite systems. It relies on 15 years' experience of SkySails Group GmbH, with a parent-

company based in Hamburg and renowned for its kite systems on freighters. (Further information at www.skysails-yacht.com)

Official supporters

ONE CREATION

Think Sustainable

One Creation

A cooperative created in June 2010 to support the rapid growth of environmental technologies in a global and multisector approach. This commitment responds to a combination of social, economic and environmental needs. (Further information at www.onecreation.org)

VAUD⁺

Canton de Vaud

Located in French-speaking Switzerland with Lausanne as its capital, where the Race for Water Foundation's HQ is based. Through the department for economy and sport, it contributes to the positive development of the latter's activities as "Donor Supporter". (Further information at www.vaud.ch)

Institutional partners



The Blue Economy

Initiated by the Belgian businessman Gunter Pauli, is an open-source movement gathering together case history studies grouped together in an eponymous report handed over to the Club de Rome. Concept: "By using a series of available resources, the wasting of a product becomes an opportunity to create new liquid assets". Founded on 21 founding principles, the blue economy insists on the

fact that solutions are to be found within the local environment according to its physical and ecological characteristics, placing the emphasis on gravity as the main source of energy. The report, which is also the movement manifesto, describes "100 innovations, which can create 100-million jobs in the next 10 years". (Further information at www.the-blueeconomy.org)



ONU Environnement

The United Nations organisation dedicated to the environment. Its goal: to coordinate the U.N.'s activities and assist countries with the implementation of environmental policies. The UN Environment seeks to

integrate environmental problems in more comprehensive policies for sustainable development. (Further information at www.unenvironment.org)

Official suppliers



8

THE FOUNDATION'S GOVERNANCE

Board



Marco Simeoni
President



Gilles
Robert-Nicoud



Angela de Wolff



Alain Nicod



Francis Waldvogel



Eloy Michotte



Éric Sarasin



Gunter Pauli

Advisory board



Philippe Sarasin



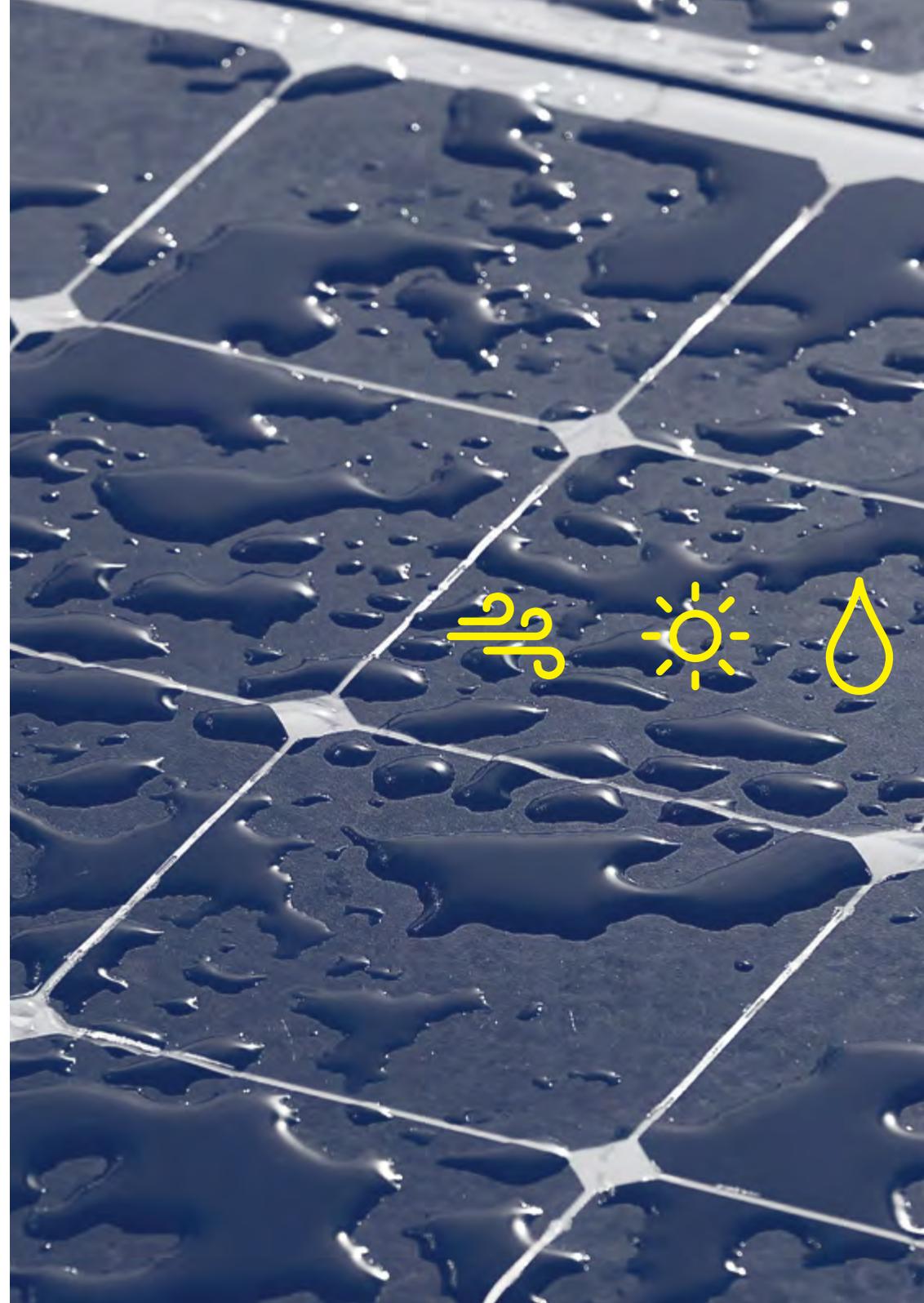
Jean-Laurent
Bourquin



Alexandre Closset



Suat Topsu



#R4WO



Website

www.raceforwater.org

Odyssey 2017-2021 blog

odyssey.raceforwater.org

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YouTube

[Race For Water Foundation](https://www.youtube.com/RaceForWaterFoundation)

Race for Water Foundation

Avenue de Provence 4
1007 Lausanne - Suisse
info@raceforwater.org

Press contact

caroline.muller@raceforwater.org
Tel: + 33 6 83 00 83 83

Press area

<http://urlz.fr/6iVx>

**RACE FOR
WATER**

**A FOUNDATION
TO PRESERVE
WATER**