

IMOCA

2022
PURPOSE
REPORT



The mechanics
of the **TRANSITION**

ORDINARY PEOPLE DOING EXTRAORDINARY THINGS



ANTOINE MERMOD

IMOCA President

“IMOCA is shaped around our people and it’s our people who give our sport purpose.”

Over the last five years our sport has grown and flourished, but not without consideration of our environment and our impact. It is the skippers and the teams that put forward these incremental ideas and actions, as it is them who are some of the first people to witness changes within our system. Our ambition is to continue to share the adventure but not at the expense of the planet. Our commitment is clear within this report. We hope that you share it too.”

WHO WE ARE...

IMOCA STANDS FOR **INTERNATIONAL MONOHULL OPEN CLASS ASSOCIATION**, BUT YOU MIGHT BE MORE FAMILIAR WITH NAMES LIKE THE VENDÉE GLOBE OR THE OCEAN RACE.

The IMOCA Class is the organisation behind one of the fastest and most exciting fleet of monohull racing yachts anywhere in the world. The boats are light, fast and strong and many of them feature foils to help them fly above the water.

IMOCA yachts are the stars of the Vendée Globe solo round-the-world race and

the **IMOCA GLOBE SERIES** of races, which crowns a champion each year.

The Class is based on **rules that guarantee sporting fairness, technical innovation and safety** to enable our sailors to race in some of the most remote parts of the world's oceans.



AND FINALLY, WHAT TIES IT ALL TOGETHER IS OUR PLAYGROUND, THE OCEAN!

IMOCA sailors spend more time on the ocean than any other sportsmen and women – it is a very privileged position from where they can witness, first hand, the ever-changing state of our oceans. That is why the Class places such importance on adopting sustainable practices, not only in its own activities but in those of its suppliers and partners.

**40
TEAMS**

**11
NATIONS**

**19 RACES
IN 4 YEARS**

**2 ROUND
THE WORLD
RACES**

**1 IMOCA
CHAMPION
EACH YEAR**

**1 IMOCA
RECORD
TO BEAT:
595.2NM IN 24H**

WHERE

IT ALL BEGAN

THE SKIPPERS MAKE THE RULES AND NOTHING CAN BE DONE WITHOUT THEM.

The key moment in the transition to sustainable principles came in 2018 when the Class formally agreed to incorporate sustainable practices into as many of its activities as possible. Since then this commitment has only expanded as more sustainable initiatives have been taken on board.



IMOCA

RULES VOTED IN 2021

In 2021 a host of rules determining IMOCA's course for the next four years were introduced. They began with measures on boat construction and team activities:

- > The use of **alternative materials** for removable parts (chart table, seats, bunks), which will be deducted from the boat's measurement weight within a 100 kg limit.
- > By 2023, every competitor shall have aboard one **'Green Sail'** among the eight

permitted on **IMOCA GLOBE SERIES Championship races.**

- > An exceptional rule allows teams to trial alternative (to the current thermal motors) **motorisation solutions.**
- > Each new IMOCA must carry a **Life-Cycle Assessment (LCA)** of its build
- > A new **IMOCA Charter** calls for all teams to monitor and reduce their emissions over the next four years.

WORKING

CLOSELY WITH THE TEAMS

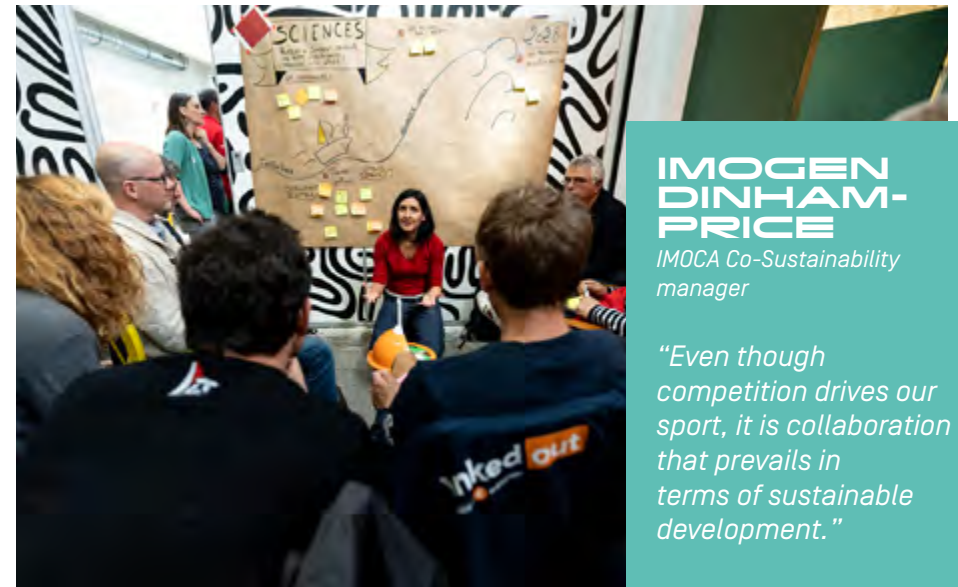
TO SUPPORT THE TEAMS IN THEIR TRANSITION TO SUSTAINABLE OPERATING PRINCIPLES, THE IMOCA CLASS IS PUTTING IN PLACE TOOLS AND CREATING OPPORTUNITIES TO SUPPORT CHANGE.

The **Teams Charter** sets out the overall goals of sustainable operational activity.

A **Carbon Calculator**, designed and customised for a professional ocean racing team, to calculate its annual carbon impact.

Transition Workshops offered throughout the year on themes including waste management, alternative materials and so on.

The **Sustainability Toolbox** and IMOCA have collaborated to provide the teams with precise guides on how to put in place their sustainability strategies.



IMOGEN DINHAM-PRICE

IMOCA Co-Sustainability manager

"Even though competition drives our sport, it is collaboration that prevails in terms of sustainable development."

OUR 2022

HIGHLIGHTS

TECHNICAL

- > Seven new IMOCA's were launched and **seven life cycle assessments** completed
- > A **'Green Sail' rule** was defined through a collaboration between the IMOCA Class and leading sailmakers
- > **300kg** of removable parts were made from **alternative materials** and four teams began testing **recycled carbon**
- > **3.5 tonnes** of carbon fibre was recycled, along with **60kg** of PBO upcycled into industrial gloves
- > Implementation of the call for expressions of interest and creation of a commission of experts to **prevent collisions at sea**

SCIENCE

- > A partnership with the **IOC-UNESCO** was renewed
- > **Ten scientific instruments** were deployed from IMOCA's during the Vendée Arctique Race
- > Two boats carried out **atmospheric analysis** during the Route du Rhum

COLLABORATION

- > **Three transition workshops** were held by IMOCA, The Ocean Race, Université de Bretagne Sud, Eurolarge and Tip&Shaft
- > A new collaboration with the **Magenta Project** that promotes women in the marine industry during the Route du Rhum
- > IMOCA sat on **the World Sailing Sustainability Commission** and this will continue in 2023



KEEPING IT HUMAN

OUR PEOPLE

IN 2022, 24 SKIPPERS WERE AMBASSADORS FOR SOCIAL OR ENVIRONMENTAL CAUSES. ELEVEN IMOCA TEAMS NAMED THEIR BOAT AFTER A CHARITY THAT THEY SUPPORT.

Initiatives Cœur and Sam Davies

Combining support for a healthcare charity and sport to increase the survival rate of children suffering from heart abnormalities.

21 children were saved during the Route Du Rhum 2022 thanks to their campaign.



LinkedOut and Thomas Ruyant

An innovative program led by the Entourage association, to help people in disadvantaged situations find employment.

Thanks to this project, 113 candidates have been engaged by the program and 61% of them have found a job in 2022.

Water Family and Benjamin Dutreux

Guyot Environnement, Benjamin Dutreux's sponsor, shares their boat name with Water Family. This is a charity which works to preserve water by developing positive education for schoolchildren.

One hundred children christened the boat with glasses of water!



Lazare and Tanguy Le Turquais

Lazare aims to help people living on the streets to return to a 'normal' life by getting involved in shared apartments and receiving support in their return to employment.

Handicap Agir Ensemble and Sébastien Marsset

Handicap Agir Ensemble is an endowment fund that supports innovative projects for people with disabilities, in order to highlight their skills.



And many other associations supported by the teams.

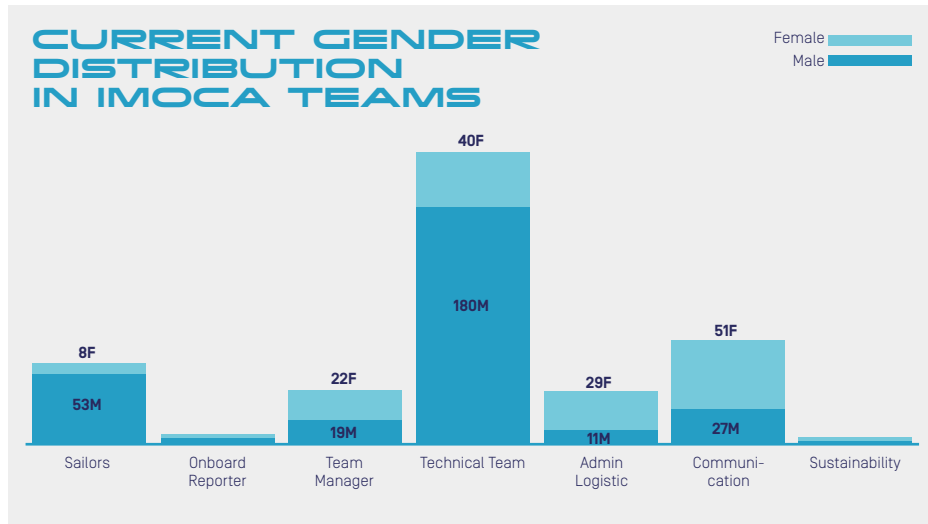
There are many other associations supported by the IMOCA teams, they include: Surfrider Foundation, Des Pieds et des Mains, Les enfants de la Balle, Coup de Pouce, Mathys, Horizon Mixité, Echo Mer, Electriciens Sans Frontières, Vaincre la Mucoviscidose, Duo For a Job and Petits Princes...

DIVERSITY

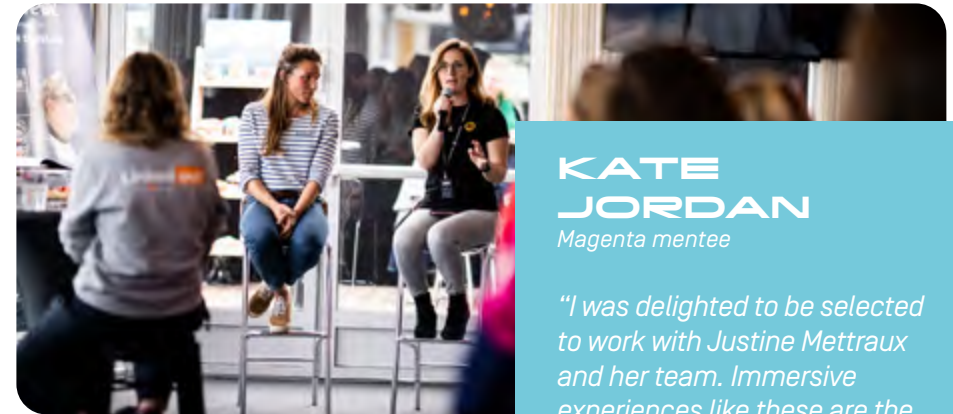
SINCE 1989, WHEN THE FIRST ALL-FEMALE CREW SAILED THE WHITBREAD ROUND THE WORLD RACE, OFFSHORE RACING HAS SEEN SOME REMARKABLE WOMEN SKIPPERS - AMONG THEM ISABELLE AUTISSIER, FLORENCE ARTHAUD, CATHERINE CHABAUD AND ELLEN MACARTHUR.

These individuals have paved the way for women in sailing, yet their influence is not enough to narrow the gender gap. More initiatives are still required to attract and assist women in offshore sailing.

The IMOCA teams already compete in a mixed sport, but the Class believes more can be done to narrow the gender gap within our sport.



MAGENTA



KATE JORDAN
Magenta mentee

"I was delighted to be selected to work with Justine Mettraux and her team. Immersive experiences like these are the best way to evolve. Justine's career and professionalism are incredibly inspiring and I am grateful to have the opportunity to see behind the scenes of the preparation of a race."

2022 MARKED THE FIRST STEP OF THE COLLABORATION BETWEEN THE MAGENTA PROJECT AND IMOCA TEAMS.

> TRANSMISSION AND LEARNING

Getting involved in a shore team is often the best way for newcomers to integrate into a sailing team. During the Route du Rhum, seven women from the Magenta Project network worked with IMOCA teams onshore to gain operational experience.

> CONNECTING AND OPENING UP NETWORKS

IMOCA and The Magenta Project also organised a networking event, open to all offshore racing classes in the Route du Rhum, that allowed the women involved to meet. More than 50 female sailors, team leaders and technicians gathered for a great evening to promote women in the sport.

JANE MILLMAN
Director of the US Naval Academy and a Magenta mentor.

"One of my career goals is to one day manage an IMOCA team and this event allowed me to meet the right people, as well as learn more about operational and technical issues."

GIVE BOX

A CONCEPT THAT HAS THE WIND IN ITS SAILS!



IN 2020, THE IMOCA CLASS SET UP THIS SIMPLE CONCEPT IN LORIENT FOR ALL OCEAN RACING TEAMS. EQUIPMENT THAT HAD BEEN FORGOTTEN ON THE SHELVES, OR UNUSED, WOULD BE GIVEN A NEW LIFE WITH OTHER TEAMS.

2022

Three donations per week from teams and professionals in the marine industry - everything from tape, ropes to large clothing donations or water desalinators

A new partnership with Identité Océan to collect team clothes and debrand them to give them a second life

More than 50kg of PBO collected by SwiftFiber, who doubled its value in their donation to a local charity

Three-and-a-half tonnes of carbon collected from teams and boatyards, all in cooperation with the 11th Hour Racing Team, sent to a recycling centre



GETTING TECHNICAL



INDUSTRY TIMELINE

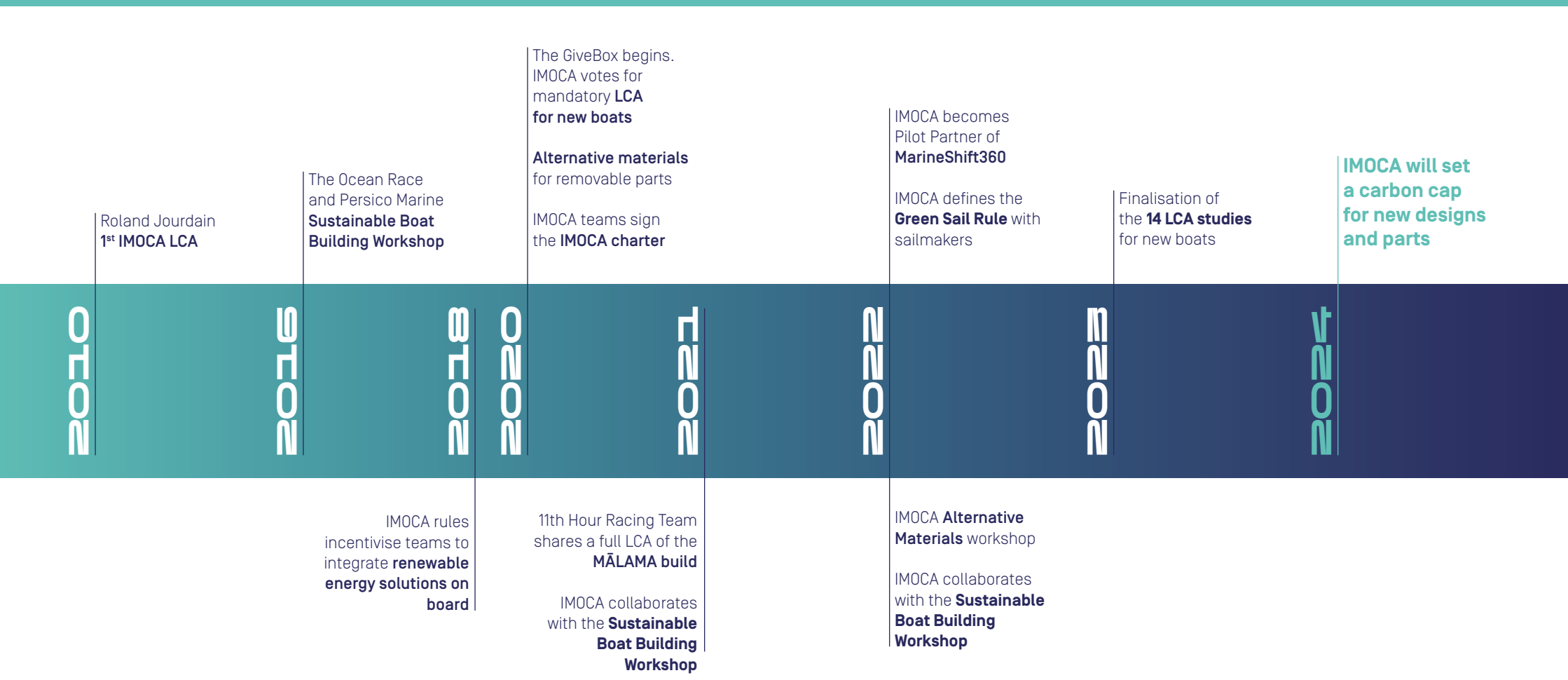
EVERY OBJECT HAS AN IMPACT. OUR BOATS ARE NO DIFFERENT. WE'RE CONSCIOUS OF THIS AND WE'RE PUTTING IN RESOURCES THROUGHOUT THE MARINE INDUSTRY TO **EVOLVE OUR SPORT**.

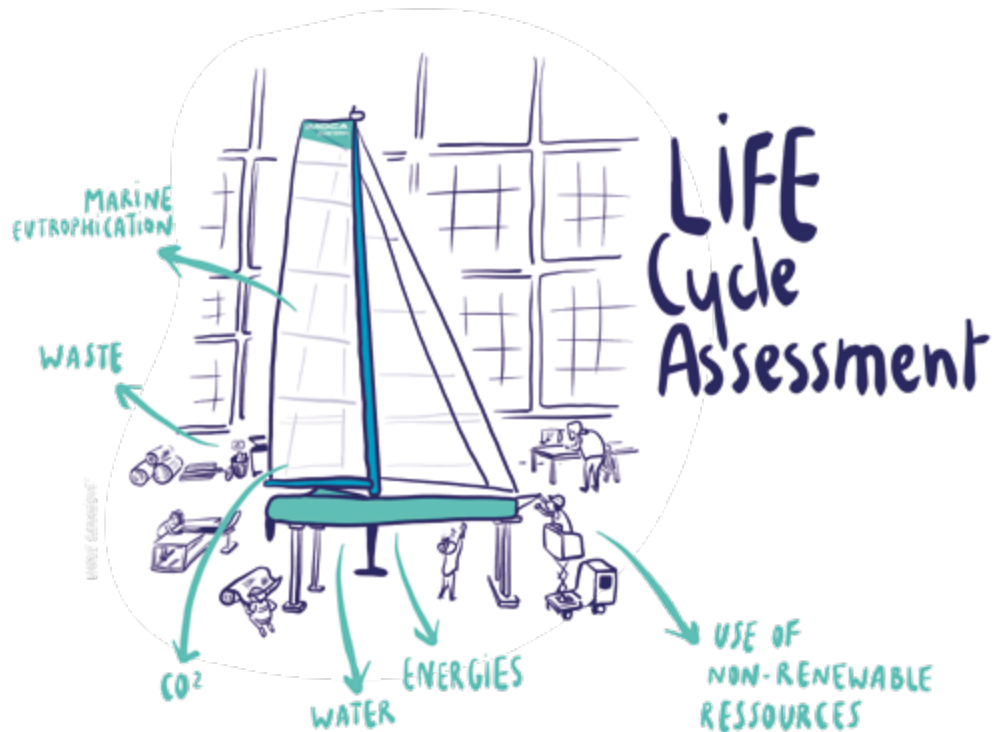
To reduce our emissions, we must understand them by **quantifying and analysing** them. Once we have achieved this we can reduce them efficiently.

We can use our **boats as laboratories** to experiment with new, less impactful techniques.

Through LCA studies, we can identify **emission hot spots** and start to re-think construction processes, the reuse of molds and new materials.

Alongside these studies, we are testing new materials to understand their **mechanical properties** with the goal of using them on removable parts where carbon fibre is not necessary.





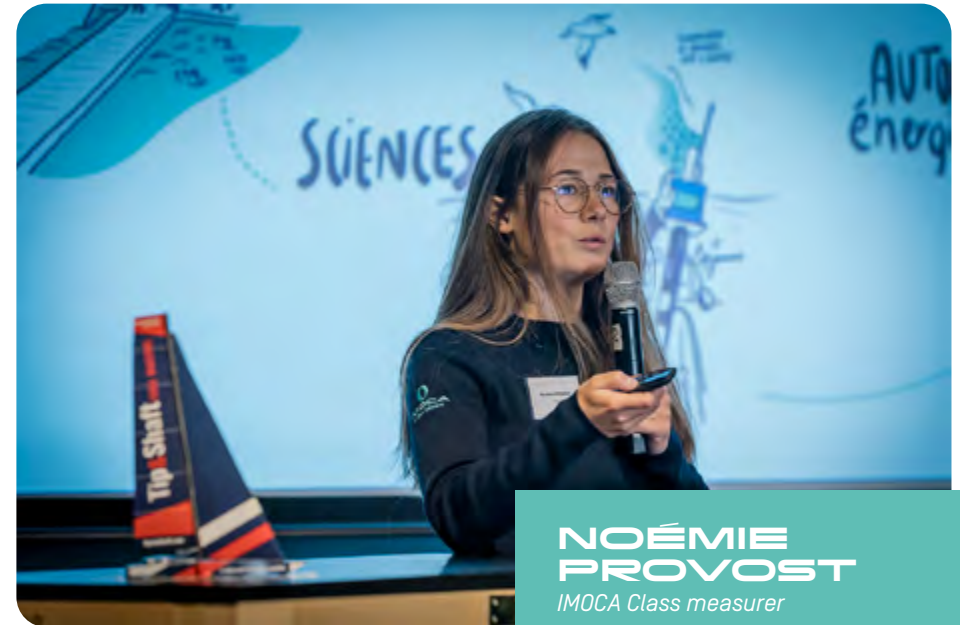
WHAT'S AN LCA?

Life-Cycle Assessment is a study that identifies and quantifies the physical flow of material and energy associated with human activity from a product's manufacture to its end of life.

Six criteria are taken into account: the potential global warming (kgCO₂e), resource depletion (kgCue), marine eutrophication (kgNe), water consumption (m³), energy consumption (MJ) and waste (kg).

The IMOCA skippers made it compulsory to carry out an LCA for **every new boat**. IMOCA has internalised this process by appointing naval architect Noémie Provost to oversee it and uses the MarineShift360 (MS360) software created especially for boat building, to carry it out.

The 11th Hour Racing Team was the first IMOCA outfit to publish a full report in 2021 on the construction of a new generation boat, their Verdier design, Mālama.



NOÉMIE PROVOST
IMOCA Class measurer

"The quest for sustainable performance doesn't happen overnight. It involves meticulous analysis of our current situation and how we're going to achieve it."

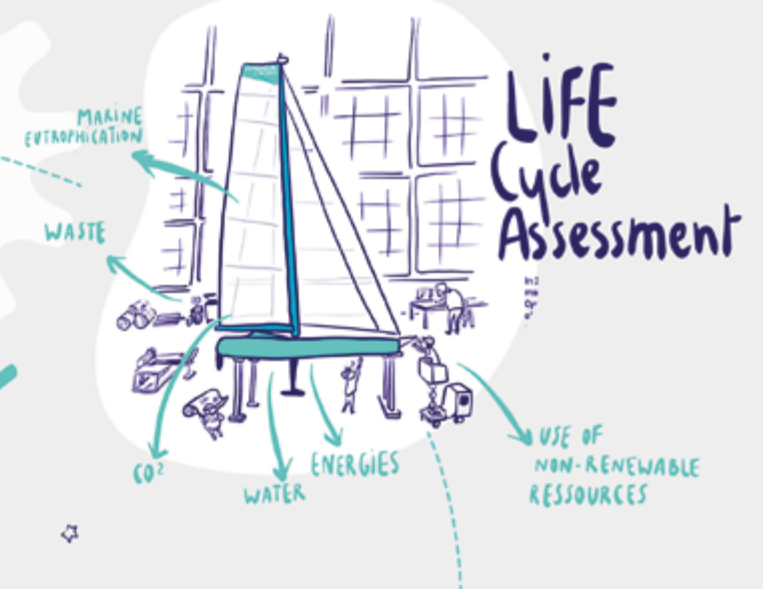
The LCA campaign is already providing its first results, though we'll have to wait for the consolidated study in 2023. It turns out that waste is a major issue with considerable potential for reduction, accounting for up to **86% of the carbon footprint from a decked hull build**. As a result, it's very likely that measures on waste management will form a key part of the next Class Rule.



COLLABORATION



The mechanics of the TRANSITION



SCIENCES



Self-sufficiency in ENERGY



Alternative MATERIALS





- > IMOCA works with over **21 shipyards**, more than **35 stakeholders** in more than **six countries**
- > The Class has started to add information to MS360, such as **autoclave temperatures and robotic foil manufacturing**
- > All 14 new-build IMOCA teams have been **introduced** to the principles around LCA and other teams have engaged with the process

- > IMOCA has chosen to select a **study framework** for LCA based on the following parts: hull, deck, mast, keel bulb, keel fin, rudders, boom and foils
- > By **managing the process internally**, IMOCA avoids bias and anomalies in data collection, calculation, analysis and comparison
- > IMOCA will finish accumulating data for the **14 new boats** in the next two years. All the results will be cross-comparable



GREEN SAIL

A FIRST FOR THE INDUSTRY

THE 'GREEN SAIL' RULE WAS APPROVED BY THE SKIPPERS IN 2021. IT STATES THAT FROM THE BEGINNING OF 2023, EACH BOAT MUST BE EQUIPPED WITH ONE GREEN SAIL ON BOARD.

It was found that a set of sails creates around **seven tonnes of CO2e** emissions (source the 11th Hour Racing Team Design & Build Report 2021). An incremental contributor to these emissions is the waste, from both primary (the resin and the fibres that make up the sail) and auxiliary (all the consumables for example, gloves, tape, paper.) material. To produce 1kg of sails, 6kg of material is required.

To be considered an IMOCA 'Green Sail' Rule compliant sail manufacturer, each sailmaker must demonstrate their waste reduction, as well as using over 25% energy from renewable sources and no aviation travel. They are encouraged to find the most sustainable and efficient means of travel possible.

At present, the 'Green Sail' Rule concentrates on the peripheral elements surrounding sail production. These have been identified as: **waste, energy and transport**. The intention is to clean up these first three sections before tackling the fundamental technology and materials within sail production.

Even after three months of this rule being in place, some sailmakers have avoided air travel, reduced waste by half and increased renewable energy use within their organisation - some are already giving their excess renewable energy back to the grid.

The evolution of the 'Green Sail' Rule going forward, will be to tighten the current system by demanding further effort from sailmakers and adding two new sailmakers to the group.



MICHEL MARIE

Life cycle assessment consultant

"IMOCA decided to assess the sails lifecycle to understand the hot spots within sail production. It was through the LCA process that IMOCA was able to prescribe the 'Green Sail' Rule and start tackling the major impact areas linked to sail production today."





The IMOCA Class skippers have voted in favour of a rule enabling them to **experiment with new materials**. It is a forward-looking approach where boats will not be made entirely from carbon fibre composite.

The teams are allowed to demonstrate creativity with **alternative fibres** like flax, hemp or recycled carbon. They can also use various resins such as **bio-resins or thermoplastics and core elements** like balsa, recycled PET or cork, to build removable parts. These include chart tables or navigation seats.

Teams are being encouraged to manufacture these parts within a **100kg limit**. This will be deducted from the total IMOCA measurement weight, which gives them a slight competitive advantage.

Nine teams have already snapped up the opportunity to trial this new rule. Material preferences favour **flax fibre**, but basalt, recycled carbon and recycled PET are also in the mix.

To date, over 300kg of parts have been made from alternative materials.



MARIE VAN DEN HEEDE

Engineer team Groupe Apicil

“Not only have we made electronic component brackets but also the whole rear deck. We’ve also begun to characterise the materials as the properties of flax fibre vary widely. This data will then be shared with the whole Class, which will enable us to develop our understanding of these alternative materials.”

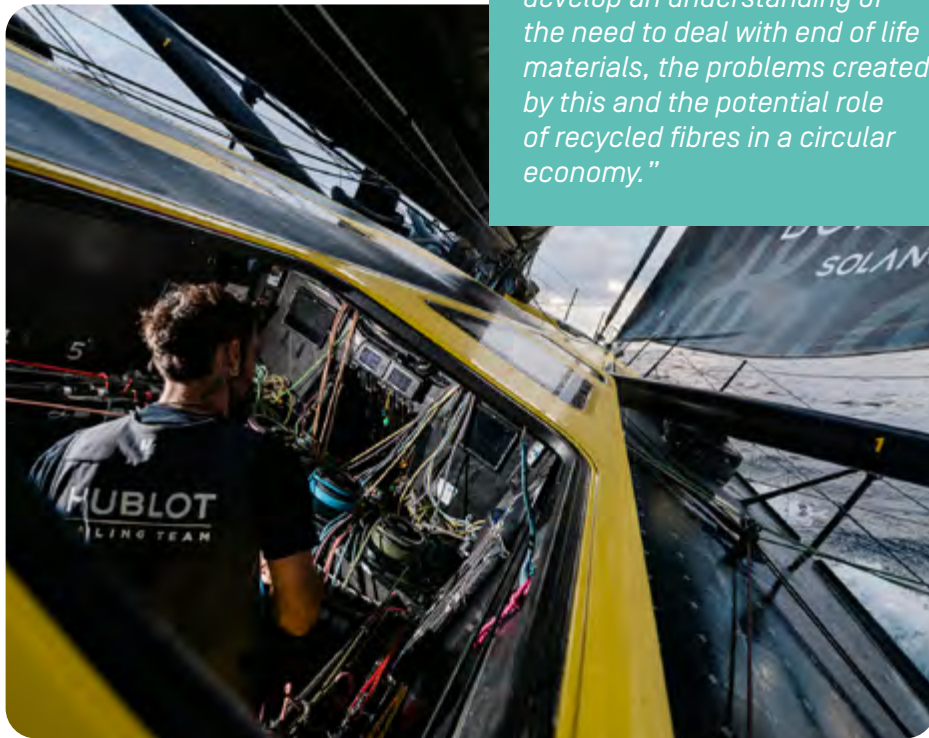
RECYCLING

Carbon fibre recycling is now a possibility, yet numerous industries like aerospace and wind turbines are not exploiting it enough. Of the 56,000 tonnes of carbon fibre waste produced around the world in 2021, less than 1000 tonnes were recycled. Thanks to the collaboration between IMOCA, 11th Hour Racing Team and Gen2Carbon, three-and-a-half tonnes of carbon fibre was recycled in less than two months.

MARK HITCHMOUGH

Managing Director of Gen2Carbon.

“The marine sector provides an opportunity to be pioneers in waste material by helping to develop an understanding of the need to deal with end of life materials, the problems created by this and the potential role of recycled fibres in a circular economy.”



GEN²
CARBON

DIVE INTO THE BLUE



SCIENCE TIMELINE

OUR OCEAN COVERS TWO-THIRDS OF THE EARTH'S SURFACE. IT IS A HABITAT, A TRANSPORTATION ROUTE, AN AIR-CONDITIONER AND AN OXYGEN GENERATOR.

As our sailors make their way around the world, they are travelling on the same ocean that connects us all. Some of the remote areas that the boats reach during races

require better understanding and are still little-known to scientists. That means the routes taken by our skippers offer real scientific opportunities.

2014

Scientific sensors on board all boats taking part in the Barcelona World Race

2015

Signing of the partnership between IMOCA and IOC-UNESCO during COP21

2018

IMOCA rules incentivise teams to embark **scientific instruments**

2020

40 scientific instruments deployed by IMOCA sailors since 2019

2021

Launch of the call for expressions of interest to find **innovative solutions** for marine mammal strikes

2022

Integration of the Odyssey project under the **Ocean Decade label**

Partnership with IOC-UNESCO renewed until 2025

Five boats equipped with scientific sensors on board

IFREMER and Météo France partner with IMOCA

2024

At least 50% of the Vendée Globe fleet will be committed to Ocean Science

SCIENCES



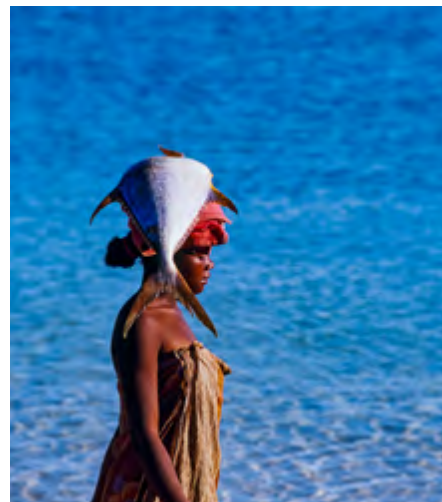
IOC-UNESCO

SINCE 2015, IMOCA AND UNESCO'S INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC) HAVE FORMED A PARTNERSHIP, PROVIDING A FRAMEWORK FOR SUSTAINABLE SCIENTIFIC COLLABORATION.

HOW DO IMOCAS CONTRIBUTE TO OCEAN SCIENCE?

- > By carrying sensors on board their boats, which **collect data** throughout their voyages
- > By collecting **atmospheric data** used for navigation
- > By deploying **oceanographic and meteorological instruments**
- > By **demonstrating and explaining the climate emergency** to institutions, scientists and the general public

SAILORS FOR SCIENCE



JULIAN BARBIÈRE,
Head of Marine Policy and Regional Coordination at IOC-UNESCO and Coordinator of the Ocean Decade.

"The Ocean Decade 2021-2030 is a unique opportunity to create a global ocean observing system that is relevant to society's needs. The objective of the Odyssey Project is to provide a framework to easily contribute to this goal."

Two types of scientific instruments deployed within the Odyssey project framework which was launched in 2022:

- > Weather buoys
- > Argo floats

Four types of onboard sensors:

- > Ferry box
- > Microplastic sampler
- > Planktoscope
- > Atmospheric data sensor



MARINE

COLLISION PREVENTION PROJECT

COLLISIONS AT SEA IS A KEY ISSUE FOR IMOCA. ALTHOUGH TECHNOLOGIES HAVE BEEN TESTED FOR SEVERAL YEARS ON OUR BOATS TO AVOID COLLISIONS, AND ARE EVOLVING AT HIGH SPEED, NONE OF THEM CAN ENSURE A 100% RELIABLE AND APPROVED APPROACH.

The solution is instead based on a combination of approaches. These includes a set of sensors on the boats, but also improved communication on the race course and better signalling of the risks encountered.

The work of the Class is thus based on three main areas:

TECHNOLOGICAL INNOVATION

At the beginning of 2021, the IMOCA Class published a call for expressions of interest in partnership with the Pôle Mer to signal the requirement to “develop a solution to remotely detect one or more targets and avoid a collision at high speed by automatically proposing an avoidance action”.



In 2022, a consortium of three entities was selected, composed of Pixel sur Mer, Sea.AI and Ensta Bretagne. The objective is to provide operational and reliable collision avoidance instrumentation for the Vendée Globe 2024.



RISK ANTICIPATION

- > Evaluation of the risks of any course with experts before each race start.
- > Work is underway to introduce an integrated **warning function** on the routing software Adrena. This will provide automatic feedback in case of collision, a more detailed observation reporting system and data collection work for scientists.



KNOWLEDGE AND TRAINING

- > **Survey of collisions encountered in offshore racing since 1960. Creation of an advisory working group** on marine mammals, composed of offshore racing experts and marine mammal experts (cetologists, bio-acousticians).
- > Collaboration with Ecole Nationale de Voile and Office Français de la Biodiversité on an **e-learning project** dedicated to sailors and race directors.

NEW HORIZONS

AS THIS REPORT IS PUBLISHED, THE TRANSITION TO SUSTAINABLE PRACTICES WITHIN IMOCA IS WELL UNDERWAY. THIS WILL CONTINUE IN 2023 AND ALREADY TARGETS FOR THE FIRST FEW MONTHS ARE BEING MET.

PEOPLE

IMOCA intends to empower 60 women in the next two years

- > Each boat has one woman on board during The Ocean Race 2023
- > Two conferences devoted to women in sailing have already taken place in January and February 2023
- > The launch of an IMOCA and Magenta partnership, with events and mentoring throughout the year, begins in May

TECH

The rules are only going to get stricter, propelling us towards a low carbon and circular industry

- > New boat builds after 2025 are expected to be capped with a CO2e limit. Work has begun to study the best future system for the Class in this respect
- > Sailmakers have already got together at the beginning of 2023 to revise the 'Green Sail' Rule, tightening the criteria and introducing a 'Green Sail' Label. Two new sailmakers, OneSails and Quantum Sails, have joined the initiative

SCIENCE

Promoting scientific principles will commit more skippers to take part in scientific engagements

- > We are working towards 50% of the fleet becoming committed to science, starting with all the boats in The Ocean Race sailing with scientific equipment on board
- > Our ambition for 2024 is to have our sailors speaking out, both for sailing and science, at the United Nations, before the New York-Vendée race start
- > Adrena has agreed to integrate a collision warning button into its software. The Guyader Bermudes 1000 Race in May 2023 will be the first race where this solution is available



CONTRIBUTION

The Class has decided to compensate their emissions with TerraTerre. This is a project that blends social and environmental elements by working with local agricultural projects in the Brittany region. The project focuses on re-generating damaged soils and increasing the biodiversity of farmland. All the projects are certified to the highest standards by Label Bas-Carbone and Gold Standard.



OFFICIAL PARTNER



OFFICIAL SUPPLIERS



SUSTAINABILITY PARTNERS



RACES



FEDERATIONS



This report sets out IMOCA's direction of travel on sustainability. Our ultimate aim, and what underpins our strategy, is to achieve positive impact within our community. Our efforts will, of course, be aimed at reducing our carbon footprint, but for this to happen ingenious and courageous actions need to be taken.

Achieving a low carbon and circular industry requires a community effort. This will mean that people will continue to play a huge role, not just the skippers and teams, but race organisers, sponsors, institutions and our industrial partners. It is vital that everyone has access to tools which allow them to take action. Supporting our teams with workshops will be continued through 2023 and 2024.

Every step in this process is a small one, but when you step back and see it all happening together, the effect can be extraordinary...



IMOGEN DINHAM-PRICE
IMOCA Co-Sustainability manager



CLAIRE VAYER
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