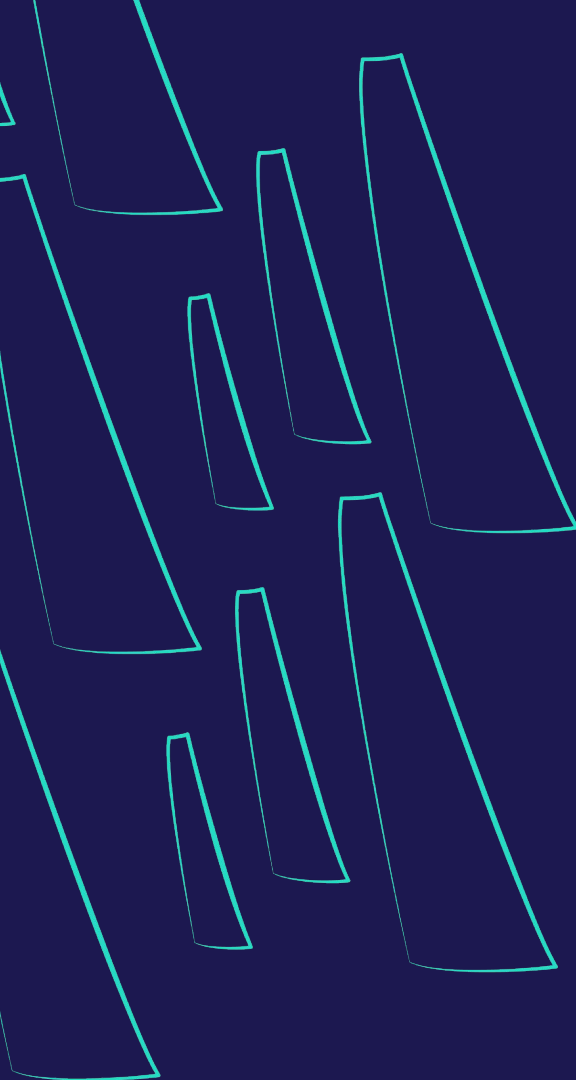




IMOCA

**DRIVING CHANGE
2020-2024**





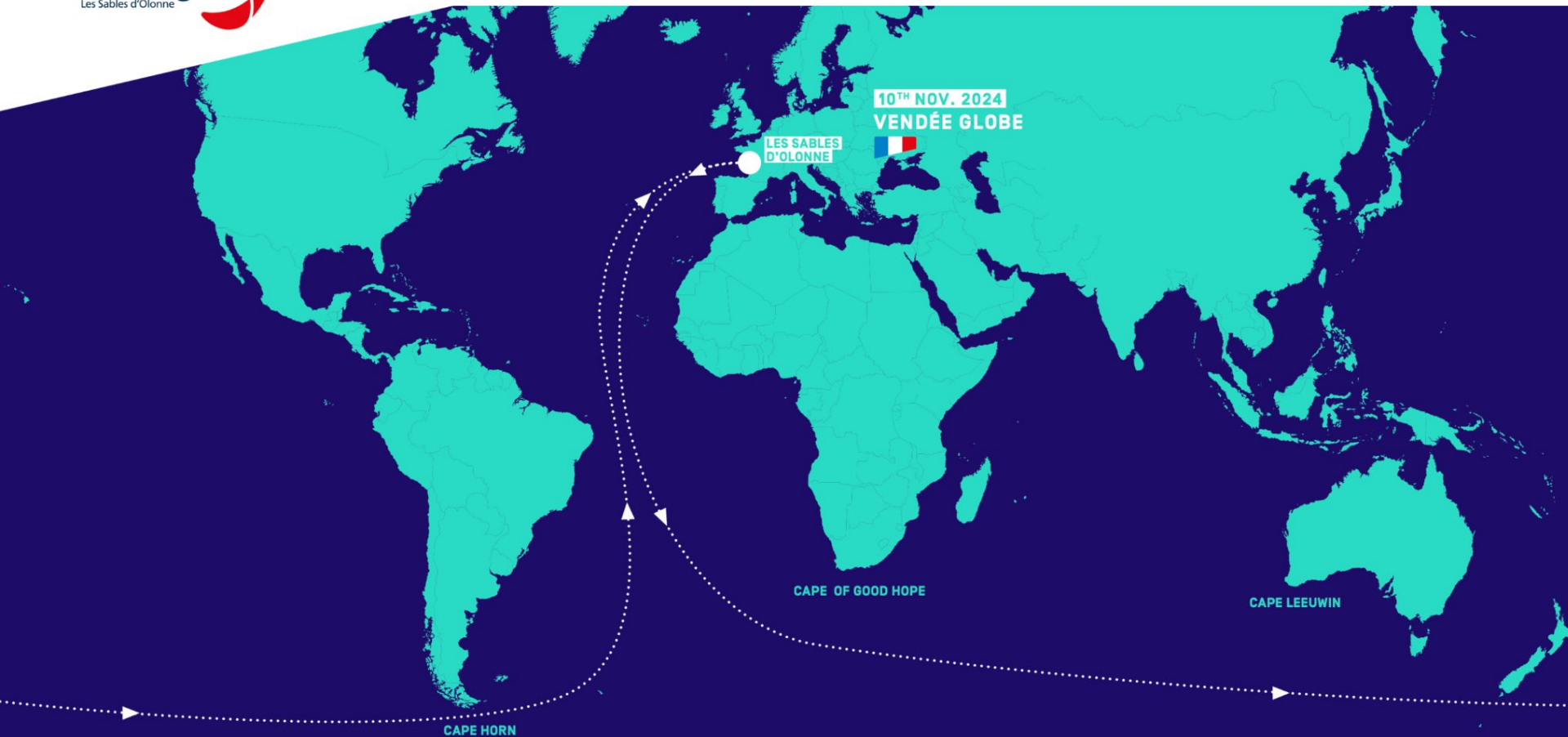
WHAT DOES IMOCA STAND FOR?

INTERNATIONAL MONOHULL OPEN CLASS ASSOCIATION.

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 Ocean Race](#) crewed round-the-world race, as well as the IMOCA GLOBE SERIES of races, which crowns a champion each year. Between 2020 and 2024, our skippers have sailed 19 races, solo, double-handed or fully-crewed.

Created in 1991, 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 ocean.

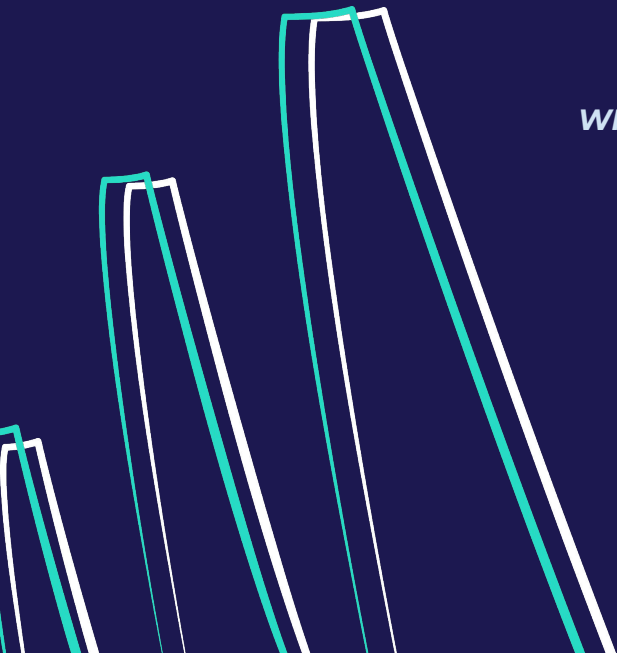


CREWED ROUND THE WORLD RACE WITH STOPOVERS



DRIVING CHANGE

WHAT IS IMOCA DOING TO IMPLEMENT CHANGE?



Working alongside our industry

Reduced impact rule for IMOCA construction
RISE (Reduced Impact Sail Evaluation)
Alternative materials rule
Team Engagement

Understanding our marine environment

Science programme
Collision avoidance programme

Keeping the diversity within in our sport

Diversity, Equity and Inclusion



USING OUR CLASS RULES TO DRIVE CHANGE

The IMOCA Class Rules are of the open type, where everything that is not expressly prohibited, limited or imposed is authorised. These rules are evolutive and developed in favour of:

- **Safety** in terms of sailing,
- Sporting **fairness**
- Technological **innovation** in terms of performance,
- Cost **control** for boats and projects
- **Sustainability** of boats and our sporting practices.

IMOCA APPROACH - Contribute to the preservation of the environment and the protection of marine biodiversity.

- Put in place all the resources necessary to achieve the **annual objectives** set by the **IMOCA Teams Charter**.
- Optimise the use of renewable energies with the aim of **achieving energy autonomy** by 2024.
- Comply with the **World Sailing Environmental Code**
- Measure and understand its **carbon impact** in order to meet the targets set by the Paris Agreements in 2030.



IMOCA Class was founded in 1991
And 83 IMOCA have been built in 31 years

Count - Calculate - Reduce
Context – Timeline – Objectives



THE IMPORTANCE OF LIFE CYCLE ASSESSMENT

Definition of Life Cycle Assessment: compilation and evaluation of the inputs, outputs and potential environmental impacts of a product system throughout its life cycle (Product Environmental Footprint, 2022).

An LCA provides a temporal image of the environmental emissions associated with a product at each stage of its life cycle. Once this picture has been obtained, improvements can be made to the product's emissions.

Objective of the IMOCA study: To identify common levers for action to reduce the environmental impact of the construction of future IMOCA boats.

The scope of the IMOCA study: From cradle to product (from the extraction of materials to the construction of the boat).

The IMOCA functional unit: Building an IMOCA boat that is ready to sail and complies with the rules.



LCA Framework : ISO 14040:2006 - 14044:2006

LCA Methodology/Impact Assessment Method: IPCC 2013 GWP 100, ReCiPe 2016 v. 1.1 and Cumulative Energy Demand V. 1.11

Database : Ecoinvent 3.7.1 + MarineShift360 Primary Dataset



IMOCA LCA PROCESS

Study Framework

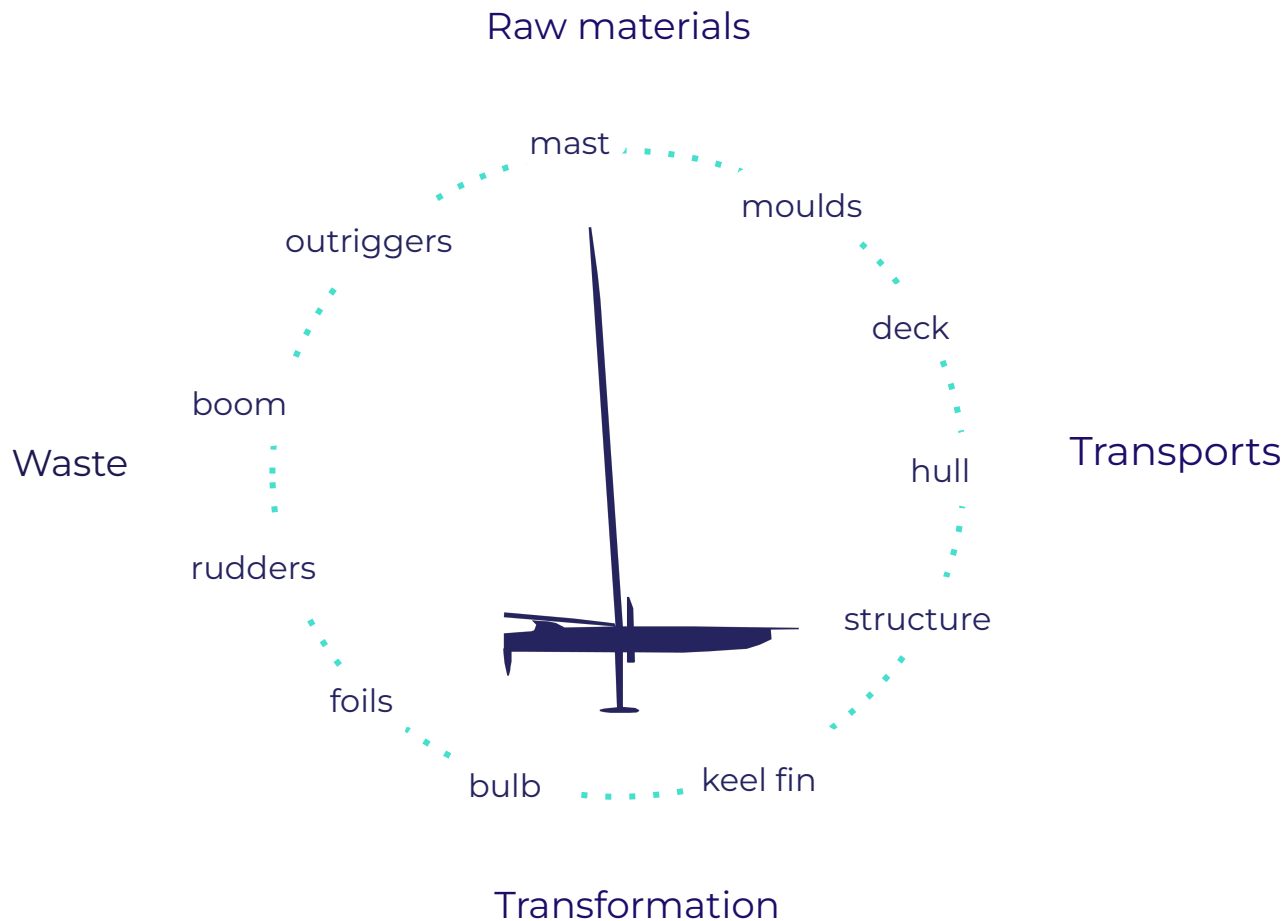
IMOCA has chosen to study the 'shell' part of the constructions

What weighs the most, as well as the manufacturing tools: the moulds.

Fittings, sails, electronics and hydraulics are not included in the study.

Three one-design elements:

- mast with outriggers
- boom
- keel fin



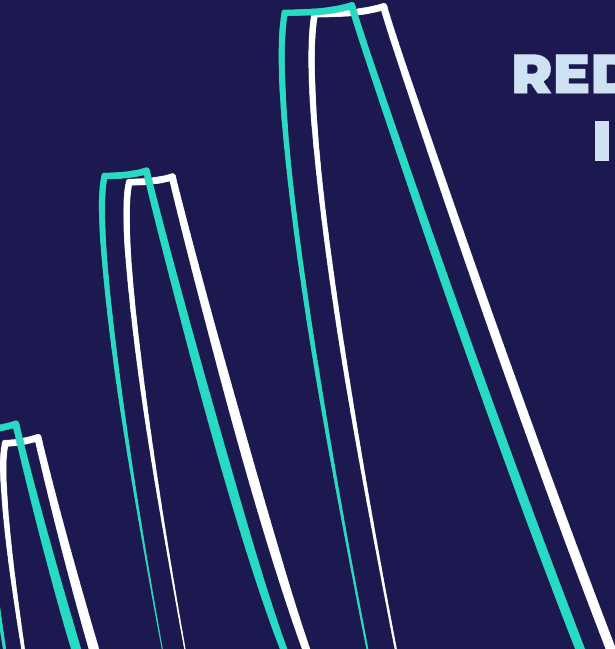
IMOCA LCA PROCESS

34 yards involved

6 construction countries

- *During the LCA process, IMOCA engaged with all **12 new-build IMOCA teams** and the associated stakeholders. However, all 40 IMOCA teams became LCA coherent as they were educated in LCA literacy.*
- *IMOCA recruited two further dedicated personnel for the LCA and Eco-Score development. This allowed IMOCA to conduct and provide 12 LCA reports and contributions to MarineShift360 and nautical community.*
- *IMOCA has participated in over 10 conferences sharing its work. The Class has also lectured 15 first year Marine Engineering masters students at the Université de Bretagne Sud, on the principles of LCA and the preparation towards impact reduction.*





REDUCED IMPACT RULE FOR IMOCA CONSTRUCTION

IMOCA ECO-SCORE TOOL

2021-23: COUNT

LIFE CYCLE ASSESSMENT

provides an image in time of the environmental emissions related to the IMOCA boat build. Once the image has been captured, improvements to the boat build emissions can be made.

12 new IMOCA builds
+ 102 new parts

Transport

Waste

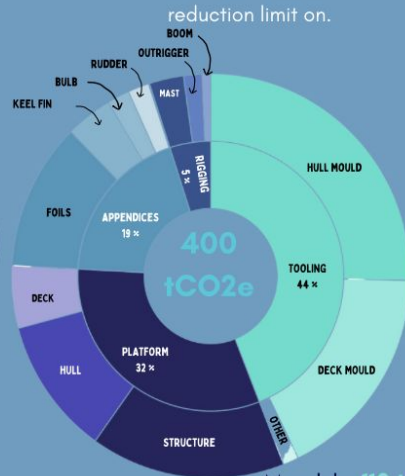
Transformation

= **285 tCO₂e**

average IMOCA boat build

2024: CALCULATE

Of the 12 builds, there were only six moulds used. To make our study more robust we had to create a new scenario to base our reduction limit on.



3 REDUCTION LEVERS

Moulds 110 tCO₂e

Platforms 105 tCO₂e

Foils 40 tCO₂e

6 moulds
+
12 platforms
+
20 pairs of foils
+
12 pairs of rudders
+
12 masts
+
12 keels

2024-28: REGULATE

APRIL 2024

Impact Reduction Rule approved

2028 OBJECTIVE
Reduce by 60tCO₂e (15% overall)



Moulds -10%

Platform -12%

Foils -13%



RISE

Reduced Impact Sail Evaluation



A SOLUTION FOR THE ENTIRE SAILING COMMUNITY

Assessing sails in terms of their environmental impact:

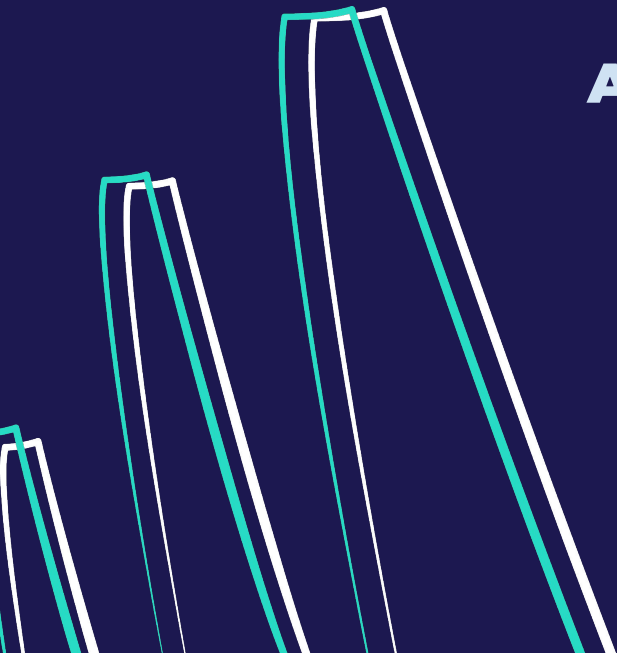
- Focus on 3 major areas of impact: transport, waste and energy
- A certified calculation method

A few figures

- 80 lower impact sails produced between 2023-2024
- < 30% CO2 emissions per kilo of finished sail
- 6 sailmakers involved in the project



ACCOMPANYING RULES AND SOLUTIONS



ALTERNATIVE MATERIALS RULE

A rule passed in 2021: 500kg of parts produced in alternative materials

Objective: to experiment with alternative materials on non-structural parts of their yachts (engine hatches, navigation seats and chart tables).

Next step: extend the use of alternative materials in boat construction and components, particularly boat moulds.

Look out for the IMOCA Alternative Materials Guide



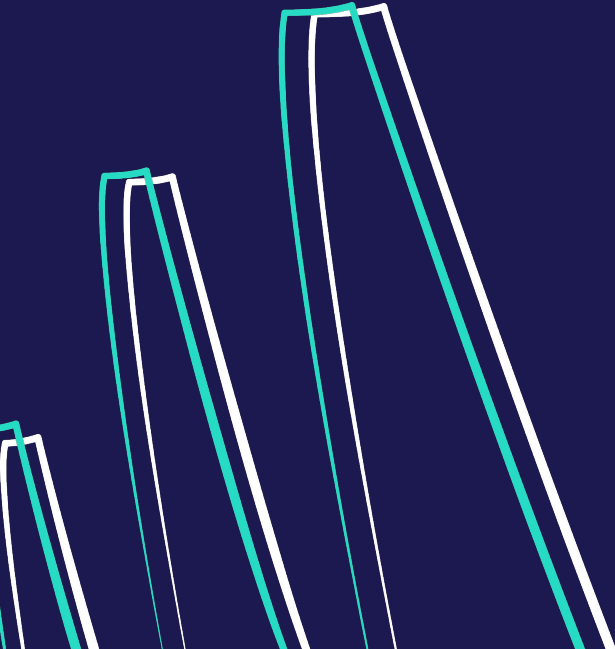
CARBON FIBRE RECYCLING

In 2022, thanks to a three-way collaboration between IMOCA, 11th Hour Racing Team and Gen2Carbon, 3.5 tonnes of carbon fibre was recycled in less than two months.

- From 2023 - 2024 IMOCA has recycled over 10 cubic metres of carbon fibre with the help of Guyot Environnement
- The collaboration between IMOCA and Guyot Environment is set to continue and will expand to the industry.
- The Maître CoQ and MACIF team have both worked with recycled carbon fibre to produce parts of their boats.



THANK YOU



IMOCA

Contact

imogen.dinhamprice@imoca.org

www.imoca.org