



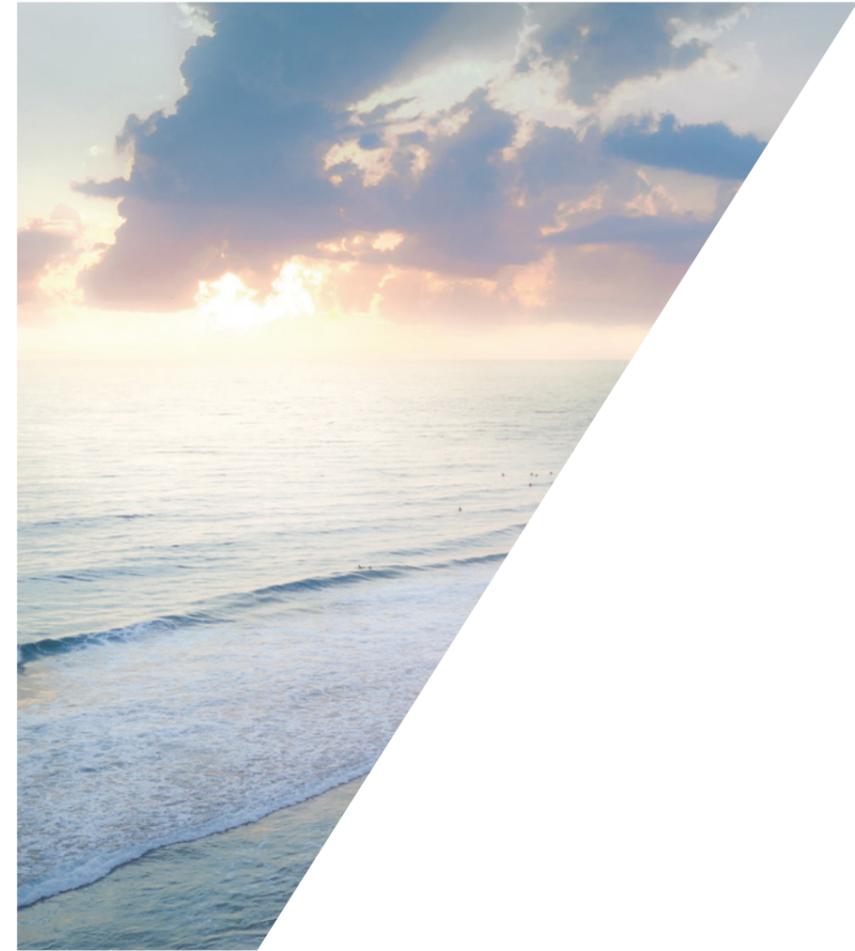
**MB92** / GROUP

# The Future of the Oceans

NAVIGATING TOWARDS A SUSTAINABLE  
SUPERYACHT INDUSTRY



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# 01 Introduction

## Pepe García-Aubert, President & CEO of MB92 Group



At MB92 we have been concerned about sustainability for as long as the company has existed.

We are people of the sea. The majority of us who started the company came from the maritime sector. We have all sailed the seas, so we are aware of the serious threats faced by the oceans and particularly by the Mediterranean.

My opinion is that the world of superyachts faces a stark choice: either become sustainable or disappear. The leisure industry must lead. It cannot wait for the commercial sector to act.

The die is cast and the pool of those still unconvinced by the challenges we face is getting ever smaller. Older owners may be noticing the effects on our oceans, but inaction now will be felt more starkly by the generations to follow.

In 2021 we launched a five-year plan to become a truly sustainable shipyard. These practices are complicated to implement but they can significantly reduce the damage we do to the environment.

We believe one in particular is most urgent. We need to focus on waste. We must stem the bloodshed. We must stop waste going into the ocean. All of a ship's waste -- during construction, during a refit and during consumption by the ship itself -- must be controlled.

We don't want plastic in the water, we don't want metallic particles in the sea, we don't want petrol in the water and we must stop wastewater being thrown into the ocean from boats. Obviously we are working on other sustainability issues such as improving production systems to make them more efficient and installing solar panels, but waste is the most urgent issue.

Becoming more sustainable is not about higher costs but instead about establishing protocols that must be followed. It's about owners being empowered to not only adhere to but also go beyond the rules and guidelines, helping to drive regulatory change. Waste will need to be deposited according to its category. Wastewater that in the past was released into the sea will have to be taken to be treated.

Our industry is already making great strides in developing alternative propulsion systems that can take us to a carbon footprint that is as close to zero as possible. The largest yacht constructors such as Lürssen in Germany and Feadship in Holland are working on systems that can help us reduce our consumption of carbon-based fuels.

We haven't yet found the ideal formula. Hydrogen is one solution that seems feasible for the maritime industry but there's still a long way to go to make it a reality. The industry is also working on improving the technology in sails to make them more efficient and reduce the use of engines.

We can learn a great deal from other industries too. Electrification is a big step for the automotive sector and we can learn from their innovation, although the size of a

yacht makes it more complicated because of the volume of batteries needed to move it. But look at what the Grimaldi Group has done with some of its ferries. They have a storage room full of batteries that at least allows them to cut out the use of generators during their stay in port.

We can also gain from innovation in the aeronautical industry, which has developed all kinds of materials using carbon fibre and special aluminium which can be applied to the maritime sector.

We're seeing it in the America's Cup where yachts using foils can lift themselves off the sea and do 50 knots. This is pure aeronautics -- it comes from the study of airplane wings. The future of yachts will in some way involve using means that allow for the boat to be lifted above the surface of the water because reducing the drag means reducing consumption. These are embryonic techniques but I think they will come quickly because there is a lot of interest in developing them.

I'm convinced that in the next 20 years we're going to see a revolution in the nautical industry like we've never seen before, a revolution that will imply a greater leap forward than when ships converted from sail to steam.

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# 02 Methodology

The findings of this report are based on a panel discussion between renowned experts from the industry and institutions focusing on the protection of the marine environment. After analyzing the current situation of the sector, both in environmental, industrial and market terms, the panel outlined the way forward to achieve a more sustainable industry. The debate put on the table not only the objectives the sector has set out but also the obstacles to achieving them and possible solutions.

The report also analyzes the progress made by MB92, among the early movers in the industry to focus on how to transition to more ecological solutions for the industry. The findings are presented in a case study. Finally, the report looks at other sectors, such as the automobile (and in particular the Stellantis group), which are further ahead in their ecological transition process.

## PANEL OF EXPERTS



**Pepe García-Aubert**  
President & CEO of MB92 Group



**Björn Berndt**  
Head of project development at Lürssen



**Vienna Eleuteri**  
Founder of the Water Revolution Foundation



**Adrian Gahan**  
Government affairs adviser at the Blue Marine Foundation



**Svein Stolpestad**  
Vice president for strategy and sustainability at Jotun



**Stephanie Weel**  
Head of operations at Y.CO



**Albert Willemsen**  
ICOMIA Environmental - Sustainability Consultant



**Charlie Devereux**  
Journalist  
Moderator of the panel

# 03 Executive Summary



## THE SUPERYACHT SECTOR'S STAKEHOLDERS MUST PULL TOGETHER TO PROVOKE AN INDUSTRY-WIDE TRANSFORMATION

The world of superyachts is waking up to the fact that it needs to become more sustainable if it and its playground – the oceans – are to survive the century.

The challenge is clear: the world's oceans are on the point of collapse due to overfishing, warming sea temperatures and pollution. We've already lost 90% of the big fish and a 2% rise in temperatures in the next decades would mean the effective end of coral reefs.

The maritime sector must play its part in addressing these issues, overfishing and pollution. It's clear that a new generation of yacht owners and their children are becoming increasingly conscious of the environmental damage to the world's oceans. As Pepe García-Aubert, president & CEO of MB92, says: younger generations won't forgive those who do nothing.

Yacht owners are looking for solutions. The most exciting innovation is in the field of propulsion. Demand for hybrid engines that combine diesel with electric energy is rising at an exponential rate. Boat builders and designers are looking for ways to reduce greenhouse gas emissions to zero using hydrogen fuel cells and other methods.

García-Aubert believes we could be headed for a revolution in the nautical industry that's as profound as when ships made the switch from sails to steam engines. The objective is to find a solution that offers the low emissions of a sailboat but without having to compromise on speed and convenience.

The superyacht industry has the financial muscle to push innovation in interesting directions. Any breakthrough made could benefit the rest of the maritime sector.

Refitters are also doing their part. They are the nuts and bolts of the industry and while their activity doesn't grab the headlines, the process of maintaining or refurbishing a boat can have an equally important impact on a yacht's carbon footprint. Swapping over to more sustainable materials and applying methods and protocols that reduce emissions can make a significant difference.

MB92, the world's largest refitter, has taken on a challenge that is by no means easy. Its five-year sustainability plan involved researching methods that didn't exist in the industry. Its shipyards are among a handful of yards in the world that can offer 99% of yachts the possibility to plug into onshore power, eliminating the need for the use of a boat's diesel engines during the refitting process. In addition, the Barcelona yard guarantees that all electricity comes from renewable sources.

Everybody knows the health of the oceans is in peril but fixing it is a complex challenge. What's clear when you dig deeper is that many in the sector want to play their part but that any initiatives are only going to work with an enormous effort in coordination and cooperation. The sector is dependent on a supply chain and that chain collapses if one link is missing. What might seem like a beneficial idea for one stakeholder could in fact have a negative impact for another.

MB92 brought together key stakeholders from our industry for a frank discussion on the path ahead for the superyacht business. The consensus view was that the path to a lower carbon footprint can only be achieved through a holistic approach that takes into account the entire lifecycle of a yacht. In the future, designers, builders, owners, managers, refitters and shipbreakers will have to reach agreements on which materials and which designs guarantee the lowest carbon footprint during a boat's existence.

The nautical sector can take inspiration and learn lessons from other industries which are further along in their journey. By 2030 we will all probably be driving electric cars, or at least cars without an internal combustion engine. Stellantis, the giant car group formed from the merger of Fiat Chrysler and Peugeot is planning for a near future where most of its cars are electric. But transitions are complicated to manage. They require not only impeccable timing but also coordination with other stakeholders. While working against the clock to make batteries affordable and with enough capacity to carry out long distance trips, the automotive industry also needs the government and electric companies to provide the infrastructure so that electric vehicles have enough charging stations.

The car industry has used investments in racing competitions to push innovation. Formula E and Formula 1 have proved to be fertile grounds for testing out sustainable technology that car companies can then transfer to their street cars. The maritime sector is following suit with events such as the E1 series for electric powerboats. Just as Formula 1 has led the way for cars, the resources the superyacht industry has at its disposal could make it a beacon for sustainable innovation for the wider community of shipping.

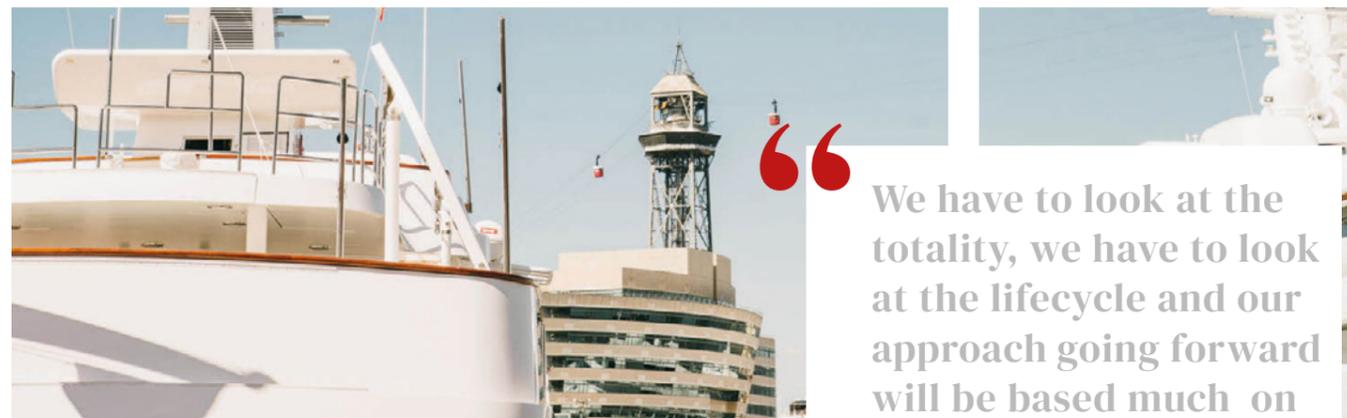
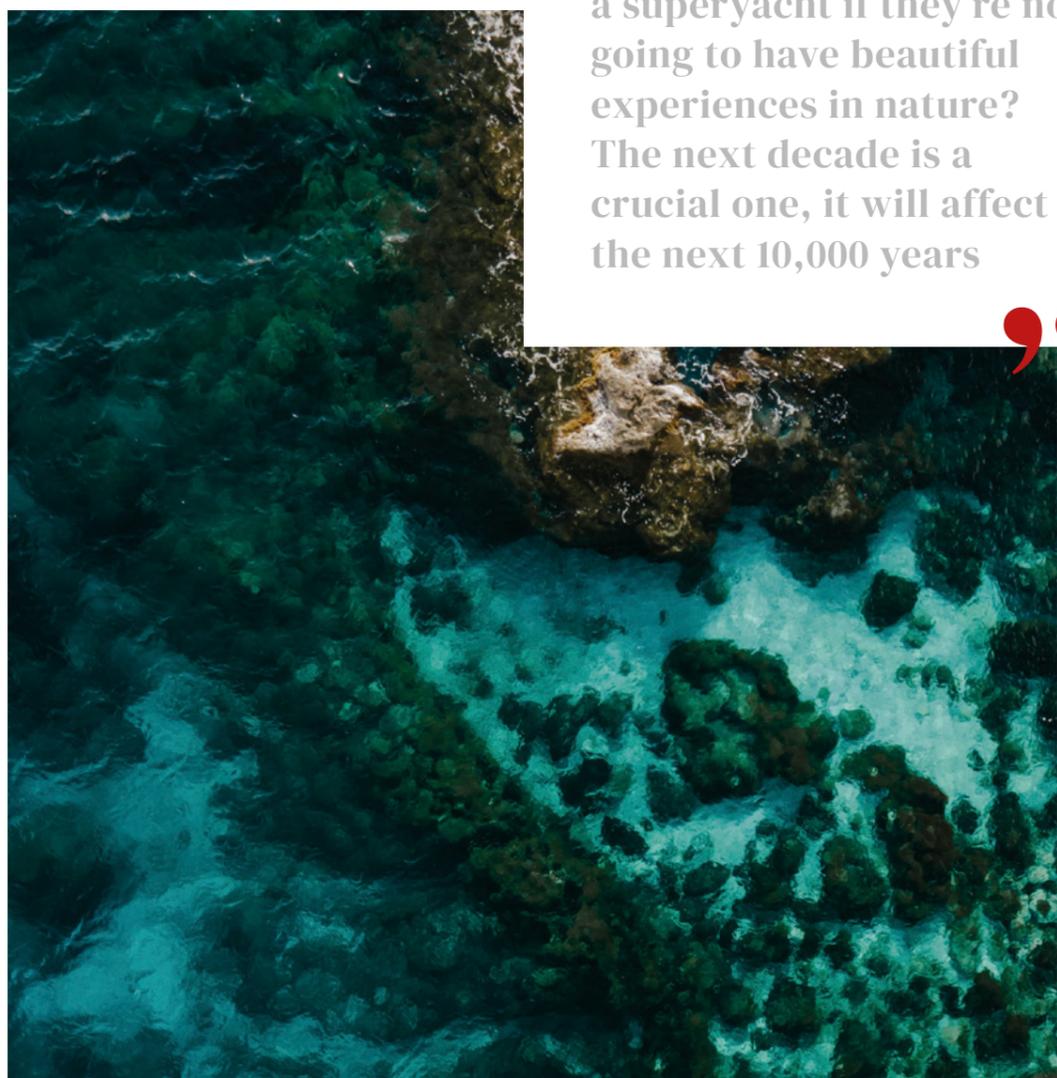
# 04 Turning the Tide: a Long Journey Ahead

THE WORLD OF SUPERYACHTS HAS NEVER BEEN SO BUOYANT AND YET SO UNDER THREAT.

Super-sized leisure boats are exchanging hands at the fastest pace ever in 2021. Year-on-year sales rose 46% in the first quarter as the economy bounces back and people seek escape from the pandemic, according to Boat International. The superyacht fleet grew to a record 5,245 boats in 2020, according to SuperYacht Times.

And yet the ocean – the environment they are built to explore – is fast approaching a tipping point, throwing up an existential threat for the sector. Can the industry survive if the world's seas become no more than polluted, lifeless bodies of water?

“Who wants to go on board a superyacht if they're not going to have beautiful experiences in nature? The next decade is a crucial one, it will affect the next 10,000 years”



“We have to look at the totality, we have to look at the lifecycle and our approach going forward will be based much on lifecycle analysis - the so-called footprint”

“The superyacht industry has a unique position within the maritime cluster because it's reliant on the state of the ocean,” says Dr. Vienna Eleuteri, founder of the Water Revolution Foundation, an industry-led NGO seeking to make superyachts more sustainable. “Who wants to go on board a superyacht if they're not going to have beautiful experiences in nature? The next decade is a crucial one, it will affect the next 10,000 years.”

The evidence supporting the notion that the world's oceans are on the verge of collapse is stark and sobering. Nitrates are seeping into the sea from agricultural run-off, creating imbalances in levels of algae and oxygen and suffocating the fish. We've already lost more than 90% of the world's big fish even if we sometimes don't notice it due to a phenomenon known as “shifting baselines”, says Adrian Gahan, government affairs adviser at the Blue Marine Foundation, a non-governmental organization.

“Where have the fish gone? We've eaten them. And if we haven't eaten them, we've caught them by accident in the process of trying to eat other things,” says Gahan. “A shifting baseline is if your grandfather came back now, swam in the Mediterranean, he would put his head under the water and say ‘my goodness, where have all the fish gone?’ But, of course, when we go to the Mediterranean and put our head under the water, we don't say that because we're not aware of what it used to look like.”

Future projections are even more dire. The Paris Agreement aims to keep a rise in global temperatures below two degrees Celsius. Anything above that would imply the disappearance of 99% of the world's coral reefs and the Arctic being ice-free once every 10 years.

Industries have been slow to respond, none more so than the maritime sector, which is responsible for about 3% of global greenhouse gas emissions. Other sectors are decarbonizing faster and unless shipping changes its way, those emissions are expected to increase by between 50% and 250% by 2050, according to the International Maritime Organization. In a business-as-usual scenario, the shipping sector's share of global emissions could rise to 10% by 2050, according to Transport & Environment, an NGO.

## HOPE FOR THE FUTURE

It's not all doom and gloom. The superyacht industry is rising to some of these challenges. Yacht builders are working on an array of technologies to reduce emissions, especially in

propulsion. Hybrid options that combine diesel with the ability to idle or even cruise for a short time on electric energy already exist on the market and are becoming increasingly popular. Some yacht builders are working on pioneering experiments with hydrogen fuel cells and the use of foils, which may shape how all ships are propelled in the future.

German superyacht builder Lürssen is working on a one-megawatt, fuel cell-powered boat fed by methanol that's converted into hydrogen. The technology will give the boat access to emission-free energy for two weeks when at anchor or for it to cruise at low speed for 1,000 nautical miles.

Lürssen has been testing the system at a facility in Bremen for a year as well as in marine conditions at the waterside, says Bjorn Berndt, head of project development at Lürssen. The project is due to be delivered in 2025. The main challenge, Berndt says, has been finding ways to accommodate not only the fuel cell but also a reformer to get the hydrogen out of the methanol.

Advances in propulsion technology are some of the most encouraging developments happening in the superyacht industry, says Pepe García-Aubert, chief executive officer of refit yard MB92. A former sailor, he's enthusiastic about innovation using wind and foils in sailboat racing, boosting speeds by as much as three times. He's confident that some of that technology can be used by the superyacht sector.

“I hope that in the next 20 years we will see a complete transformation of our industry,” García-Aubert says. “We can see that owners are more and more ready to invest in new yachts with new propulsion systems. If we don't do this in the next 25 years, the world will probably say: ‘sorry, but you cannot use these boats anymore because we are in real danger of losing the oceans.’”

Propulsion is a key area where yachts can reduce their carbon footprint but, unlike commercial shipping, leisure boats spend much of their time static, either anchored offshore or undergoing maintenance at a shipyard. It's therefore as important to find ways to make the construction and maintenance of a yacht sustainable, says Albert Willemssen, environment advisor to the International Council of Marine Industry Associations, or ICOMIA.

MB92 is one of the refit shipyards leading the way in sustainable practices. Last year, it launched a multi-million-euro, five-year sustainability plan for its yards in Barcelona and La Ciotat in France. The practices it is implementing include guaranteeing that each of the ships docked at its yards can use onshore power from renewable sources instead of relying on diesel-run generators while undergoing a refit. It also insists on hauling boats out of the water when painting to reduce risk of water contamination.

At La Ciotat, MB92 is investing 45 million euros in a shiplift with electricity transformers designed to be sustainable throughout their lifecycle, green water treatment plants and the world's largest harbour-based artificial fish nursery.

Suppliers are also making progress. Norwegian paint manufacturer Jotun, which provides about 25% of the paint used in the maritime sector, has been working to reduce levels of volatile organic compounds, or VOCs, in its paints. The paint industry as a whole has reduced VOCs in its solvents by about 75% over the past 15 years, says Svein Stolpestad, vice president for strategy and sustainability at Jotun.

But when the supply chain and stakeholders work in isolation, the results are often less effective and sometimes counterproductive, Stolpestad says. A ship builder may introduce a silicon hull to make the yacht glide more easily through the water, reducing friction and saving energy. But what happens when the boat reaches the end of its life, he says. The material is difficult to recycle and hard to break down, so how do you dispose of it in a sustainable manner?

Biofouling, or the build-up of plant and animal life on ships' hulls, is one of the greatest threats to ocean biodiversity since it brings invasive species that can quickly affect the balance of a new ecosystem. But using biocides to kill them pollutes the water and also threatens the equilibrium of the marine environment.



## A HOLISTIC APPROACH

Only a holistic approach which involves all of the stakeholders and that takes into account the entire lifecycle of a yacht – from its design and initial construction to its refit and maintenance through to its eventual disposal – can guarantee that different solutions don't cancel each other out.

**"We have to look at our own processes and we have to look at the product in use,"** Stolpestad says. **"It doesn't really help the planet if we replace the solvent with something which is worse as a raw material. So we have to look at the totality, we have to look at the lifecycle and our approach going forward will be based much more on lifecycle analysis - the so-called footprint."**

Lifecycle analysis tools developed for the superyacht industry are in short supply. The Water Revolution Foundation's Yacht Assessment Tool is one of the few that are available to yacht owners today. The software program developed at the University of Bologna is based on computational sustainability and crunches data while taking into account regulations to calculate a yacht's sustainability and how it can be improved.

The program also allows designers and refitters to consider all the life stages of a yacht, says Eleuteri, the tool's creator.

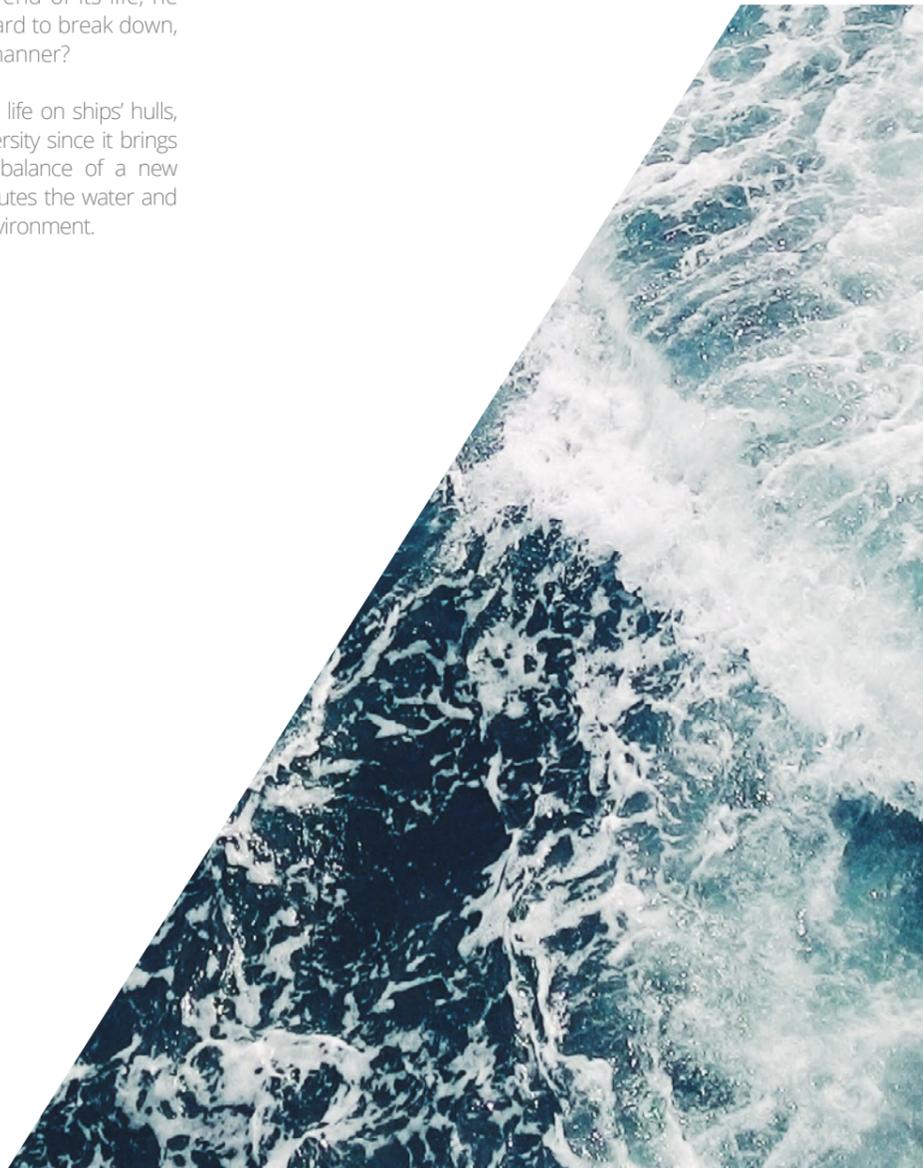
**"It's not enough to add one solution on top of another,"** says Eleuteri. **"In order to have an effective impact we need to have a lighter ecological footprint and at the same time to invest in ocean conservation at scale. This is the very core of our challenge: a systemic vision, a systemic approach to the design, the build and the use of a superyacht."**

That's why the Water Revolution Foundation is also developing a database of sustainable solutions to provide the yacht industry with options that can reduce their environmental impact. Knowing that a supplier has been verified also means constructors and refitters can avoid "greenwashing". The foundation is also in the process of building a database library of sustainable suppliers, facility improvements and best practices.

The Superyacht Eco Association index, developed by the Monaco Yacht Club, Credit Suisse and the Fondation Prince Albert II of Monaco, is another tool designed to assess a boat's carbon footprint to encourage builders and owners to design vessels with lower fuel consumption and less of an impact on the environment.

Management companies can play a key role in helping owners, their representatives or captains appreciate the impact of their decisions by helping them to understand the implications of each choice they make, says Stephanie Weel, head of operations at Y.CO.

But coordinating between different stakeholders and their conflicting timetables, budgets and objectives can be challenging. A solution may be more sustainable but a refitter who is under pressure to complete a job within a timeframe may be hard to persuade.





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Superyachts are built for travel, often to remote areas. A lack of consistency between jurisdictions can often thwart the best efforts to uphold sustainable practises, Weel says.

“Yachts come into these remote areas with nicely separated waste but often the islands can't process the different waste, so it all comes back together again in one facility,” she says. “Collaboration is key: how do you bring the different stakeholders in the process together to make the circle of recycling complete?”

Communication can also be a stumbling block, says MB92's García-Aubert. A naval architect may not know that their design creates more work and more waste for other stakeholders. Crews and shipyard workers need to be trained in sustainable practices so that they can spot design flaws and point them out.

“The crew have to raise their hands in these cases when the design is faulty for the boat to say: Sorry, but it's impossible to maintain a yacht like this.”

The industry can become more sustainable by introducing new practises but it's unlikely to be enough, says Jotun's Stolpestad. It will need to learn to make do with less of everything. A business known for its excesses may have to become more austere, he

says. Boats built from sustainable, durable materials which are maintained less frequently are the most effective way to reduce the carbon footprint.

“If the painting interval or the maintenance interval is extended from three years to five years or from five years to eight years, the effect on the footprint is large,” Stolpestad says. “So my message when discussing sustainability is: go for longevity, go for long life, go for the proper stuff.”

#### SAVING ENERGY

Similarly, while new technologies may substitute combustion engine propulsion, designers need to put as much effort into working out how to avoid loss of energy, says Lürssen's Berndt.

“We not only have to change our energy consumption to renewable energy, we also have to save energy,” he says.

That means measures such as using lighter materials to cut down on the weight a boat needs to propel through the water and making glass more efficient so that heat and cold air are preserved.

Boat builders can improve efficiency by knowing their customer and providing a tailor-made product, says Berndt. It makes no

sense to build a boat for traveling at high speeds for an owner who is only interested in cruising. Selling a sailing yacht to an owner who doesn't plan to navigate in windy areas is also a waste of time, he says.

“We have to be very careful about finding out what the right technology is for each customer,” he says.

In 2015, the United Nations set out its agenda for 2030, which included a set of 17 sustainable development goals. Goal 14 (Life Below Water) is the most relevant but Goals 9 (Industry, Innovation and Infrastructure), 11 (Sustainable Cities and Communities) and 13 (Climate Action) can also apply to the industry and are used as a guide by stakeholders when applying their own sustainability initiatives.

The International Maritime Organization, the UN agency that implements goals and regulations on environmental policy concerning the sea, in 2018 adopted a plan to reduce greenhouse gas emissions. For the first time it has laid out a goal to reduce total annual emissions by at least 50% by 2050 compared to 2008 levels.

The UN has also set a target to protect 30% of oceans from fishing by 2030. The so-called Marine Protected Areas have shown they are perhaps the most effective way of replenishing

fish stocks. Studies have shown that areas where fishing is banned can increase their biomass by an average 400% in a short period of time.

“Overfishing is almost certainly the most solvable macro-environmental challenge that the world faces,” says the Blue Marine Foundation's Gahan. “The reason why it's solvable is that the ocean is extremely resilient, and if you just leave it alone, it will bounce back.”

Industry stakeholders are already collaborating on marine protection programs. Yacht builder Lürssen in 2020 donated \$2 million to help fund a 450,000 square kilometre MPA around Ascension Island, the British protectorate in the middle of the Atlantic.

Gahan thinks the industry, and especially the influential owners of yachts, can do more by lobbying national governments to convert UN goals into laws. Only Palau in the Pacific has so far met the 30% target and only 9 countries have fully protected at least 10% of their waters, according to the Marine Conservation Institute's Marine Protection Atlas.

## MISSING LINK

Goals can become little more than hollow promises unless they're converted into legislation that can then be enforced. Many countries have dragged their feet over implementing some of the UN's lofty objectives.

**"The missing link is the movement of a global target into national law and national policy,"** says Gahan. **"Not every country, I'm afraid, has been very good about translating the international agreement to a domestic target."**

But there are signs that governments are beginning to make moves on several legal measures that will directly affect superyachts. An outline for a new European Union directive that's currently being considered by its parliament and should come into effect by early 2023 will oblige companies with annual turnovers of more than 50 million euros to carry out due diligence on their supply chain to ensure they meet social, environmental and governance standards. In short, companies will have to take responsibility not only for their own sustainable practices but also those of their providers.

It's the kind of legislation that may force a change in the mindset by pushing supply chains to work together and avoiding the failures in communication that often harm efforts to improve sustainable practises, says Eleuteri.

The prevailing winds mean companies operating in the EU that may not be energy intensive in their operations will still be asked to calculate the footprint of the materials they bring in from outside the EU, says Stolpestad.

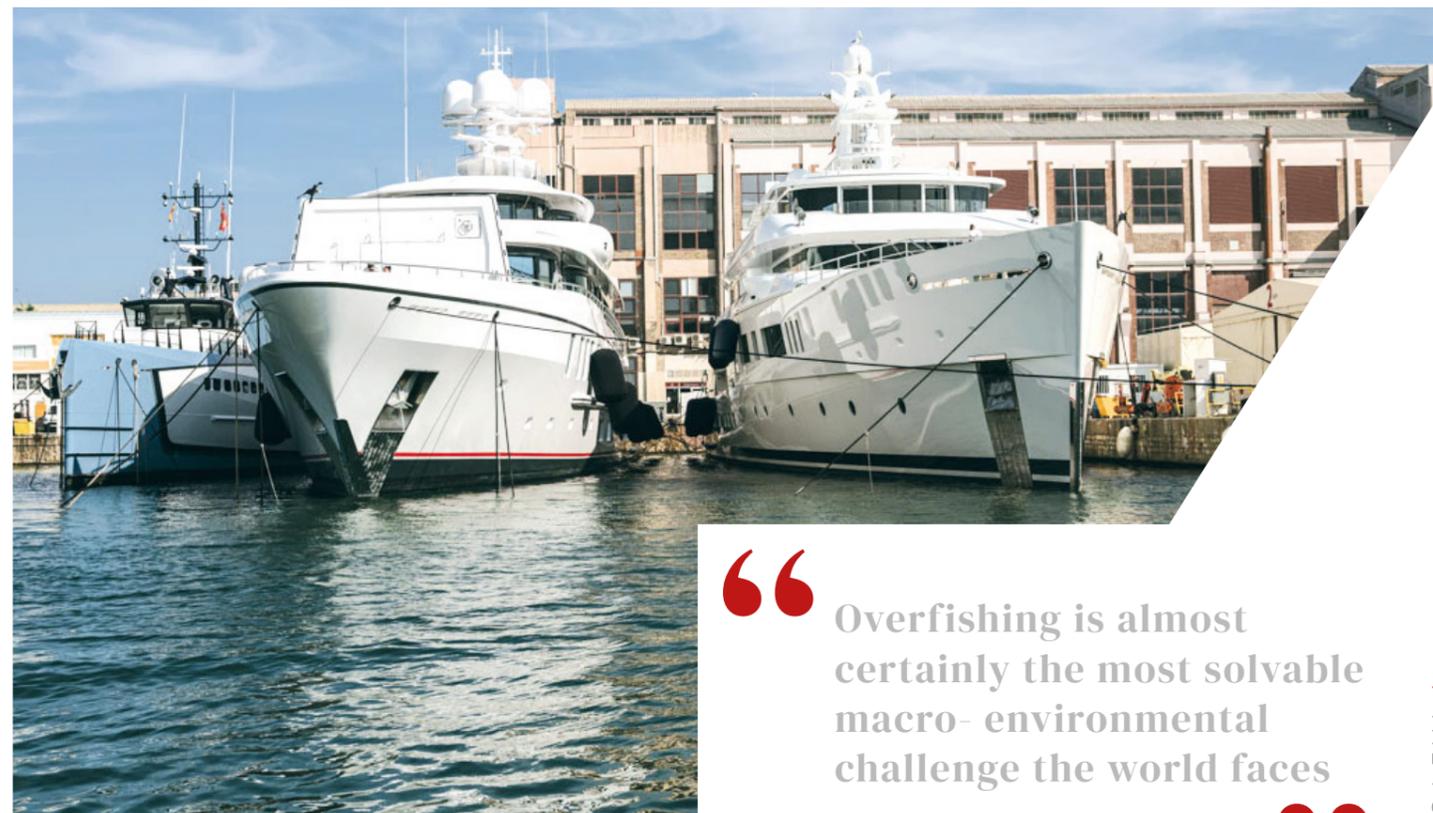
**"The squeeze on industries in Europe will apply to this industry as well,"** he says.

It's no surprise that the life stage of a ship that receives the least attention is its final one. But shipbreaking has grown into a major environmental hazard. The scrapping of a vessel implies toxic substances such as lead, mercury and sulphuric acid often finding their way into coastal waters or the soil. Moreover, the fibreglass often used for the hulls of superyachts doesn't have the same recycling value as the steel used in commercial ships.

## BOLD MEASURES

But a new law that's being proposed by the IMO, and that's already in effect in the European Union, will force constructors and refitters to think about the materials they use on yachts, says ICOMIA's Willemsen.

The Inventory of Hazardous Materials, or IHM, obliges a shipowner to document all potentially hazardous materials on



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their vessel as well as to ensure that the ship is in compliance with the directives.

**"The IMO rules are very bold, they will hit this industry,"** says Jotun's Stolpestad. **"There will have to be continuous monitoring and also continuous reporting of the efficiency of the ship."**

The car industry, which faces more immediate deadlines on reducing emissions, is already grappling with what to do with the fleet of combustion engine vehicles that will effectively become obsolete in 2035. The superyacht industry will also have to face up to this conundrum. Refitters will have to adapt their shipyards and work out ways to retrofit a fleet of yachts with combustion engines to comply with the new regulations, says García-Aubert.

**"At some stage these yachts will need to change to new propulsion systems,"** García-Aubert says. **"It's very difficult for us to say how we are going to deal with this but every refit yard that wants to maintain their activity in the future will have to be prepared for this."**

The 2030 goals are ambitious and the world's track record in meeting these kinds of objectives is poor. None of the biodiversity targets established in Aichi in 2010 have been met at this stage. Much of the 2030 agenda is already behind schedule. Just 6% of the world's national marine areas are fully or highly protected.

Illegal fishing fleets have been able to flaunt restrictions with relative ease. But Gahan sees a chink of hope in improved satellite technology in the last five years that allows authorities to monitor and enforce those areas that are protected.

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In March 2011, the Federacion Internationale de l'Automobile's President Jean Todt met with Spanish businessman Alejandro Agag in a Paris restaurant to hash out an idea that would

eventually become Formula E. Their idea was to create a racing car championship that would see electric cars speeding through the world's most iconic cities and showcasing the capabilities of sustainable mobility.

The first season began in 2014 and has grown each season and now features 12 teams and 24 drivers supported by 10 manufacturers. Car makers such as Audi, BMW, Mercedes-Benz, DS and Nissan soon joined, spotting an opportunity not only for marketing but also to use the competition as a platform for experimentation and developing electric vehicle technology, using the data they collect to apply it to their consumer cars.

The speed at which the technology has improved is impressive. The first-generation car used in the first few seasons used battery-electric technology that had never been used on a racetrack. But the battery's limits meant drivers had to swap vehicles halfway through the race. That changed in the 2017/2018 season with the introduction of the second-generation and after six full season teams are pushing the engines to further gains in efficiency.

The latest engines have an efficiency rate of 97%, meaning all but 3 percent of the energy from the battery is converted into kinetic energy, which propels the car. That contrasts with the 50% efficiency achieved by Mercedes' 2020 championship-winning hybrid power unit, which was already the most efficient combustion engine in the world.

But Formula 1 has ambitious plans of its own. In 2020 it announced its aim to become a net zero carbon sport by 2030. That will include its cars, which will be powered by biofuel refined from biowaste. FIA said in December that the first barrels are already being tested and that the objective is to demonstrate that the technology works and to encourage suppliers to develop their own 100% sustainable fuels.



## A BEACON FOR THE INDUSTRY

The role Formula One and its sister competition Formula E are playing in the automobile sector is one that the superyacht industry can replicate in the maritime industry, says ICOMIA's Willemsen.

**"The superyacht industry is indeed the Formula One of the marine industry,"** he says. **"It leads the ways in developing new techniques, new kinds of designs."**

The leisure boat sector has developed its own competitions to try to encourage innovation. The Monaco Energy Boat Challenge is a series of motorboat races that use energy from renewable sources organized by the Yacht Club de Monaco. The E1 series mirrors Formula E by organizing speed boat races with electric engines.

Still, when it comes to sustainability it still has some way to go, says Stolpestad. The path for now is being beaten by others such as the offshore supply vessels sector which has responded to demands for efficiency and lower emissions, he says.

In 2020, Norway's Eidersvik Offshore announced a five-year pilot project to develop the world's first zero emissions supply vessel. The Viking Energy will be able to travel long distances

without emissions of greenhouse gases using a propulsion system based on fuel cells powered by ammonia. But the financial firepower at the disposal of the superyacht sector means it can take over that mantle if there's a change in thinking, Stolpestad says.

**"Can the superyacht sector become the Formula One of shipping? Yes, it can,"** he says. **"But there may have to be some sort of mindset change here. The solutions chosen need to be designed in from the beginning, such as the use of more benign materials or easily-recyclable materials."**

Superyachting, and the wider maritime sector, is lagging behind other industries. To be part of the movement to stop the rapid deterioration of the oceans it will have to play catch-up. What's clear is that the solutions aren't always straightforward and, if they're to succeed, require cooperation and communication between different stakeholders in this burgeoning sector.

**“** Can the superyacht sector become the Formula One of shipping? Yes, it can **”**



# 05 Interview

## José Antonio León

### Institutional Relations and Communication Director, Stellantis Iberia



**“The plan devised today needs to be put into action immediately”**

## WHAT SUPERYACHTS CAN LEARN FROM THE CAR SECTOR'S SUSTAINABILITY JOURNEY

As the yachting world experiments with technologies that can reduce carbon emissions, the car industry is already on the next phase: rolling out electrification on a global scale.

One of the leaders in what will prove to be a revolution in mass transport is Stellantis, the giant car group formed earlier this year through the merger of Peugeot and Fiat Chrysler. In July, the group announced plans to invest more than 30 billion euros to convert the majority of its car production to electric engines by the end of the decade. Stellantis is aiming for 70% of car sales in Europe and 40% in the United States to be electric vehicles by 2030.

Jose Antonio Leon, head of communications and institutional relations for Stellantis in Iberia, has some words of advice for other sectors that are trying to make the transition to a more sustainable business model. First of all, identify your clients' needs, he says. Secondly, once you've devised a plan, act fast.

**“You need to adapt or you'll disappear – it's Darwin's theory,”** Leon says. **“You die because your competitors overtake you. The plan devised today needs to be put into action immediately.”**

The superyacht industry faces a similar existential threat. While the regulatory deadline is more urgent for the car sector to lower its emissions, the maritime industry has also set a target of reducing greenhouse gas emissions by 2050.

When making a transition, getting your timing right is crucial. Stellantis will have to walk a tightrope between meeting deadlines from governments to reduce emissions while also driving down prices through technological innovation and pushing for the state to provide the necessary infrastructure for electric vehicles to be viable on a mass scale.

The European Commission's Green Deal is seeking a de facto ban by 2035 on all new vehicles with internal combustion engines, including hybrids. It's also seeking a 55% reduction in carbon emissions from passenger vehicles by 2030.

Stellantis's ambitious plan is possible because of the economies of scale created by the merger, said Leon. The group is designing flexible production platforms to manufacture different vehicles and allow them to cut costs. At the same time it is planning to install solar panels and adopt other measures to reduce the carbon footprint in the production process.

Making cars affordable will also depend on developing better battery technology. The group plans to open battery factories in France, Germany and Italy as well as two in the US. It will introduce solid-state batteries, which are cheaper, smaller and could increase a battery's lifecycle fivefold, by 2026.

Stellantis says improved battery technology will push the range of electric vehicles by up to 500 kilometres to 800 kilometres and accelerate charging times to 32 kilometres per minute. At the same time, prices will fall, driving down the cost of vehicles by 40% by 2024 and by a further 20% by 2030.

In Spain, Stellantis is already producing three fully-electric vehicles, with a further six planned for the near future, while on a global scale car buyers have a choice of 30, rising to 40 by the end of 2021.

Leon said he's confident cars will become affordable for all of the group's range of clients – from those seeking an urban runabout, such as the diminutive Citroen AMI, which requires no licence to drive, to lovers of 4x4s such as the Jeep Wrangler which recently unveiled an all-electric version.

One of the biggest impediments to boosting electric sales is the lack of infrastructure, especially charging stations. Leon says governments and energy companies need to keep up their side of the bargain.

**“The electric car isn't just the responsibility of the carmaker, it's a responsibility of the carmaker, governments and energy companies,”** he says. **“The three need to be rowing in the same direction at the same speed.”**

Just as the automobile industry is helping push governments into action, superyacht business and influential owners can play a similar role for the sector by encouraging governments to enshrine UN goals in national law.

There's a third, less tangible, impediment to persuading consumers to switch to electric, which is fear of the new and requires a pedagogic approach, said Leon.

**“How can we make the electric car more attractive?”** he says. **“By explaining that it's a smoother drive that makes no noise or vibrations.”**

Stellantis is developing apps that help drivers plan routes according to charging stations and teach them about how they can heat their cars overnight in order to avoid wasting battery power while driving.

Many of the breakthroughs in technology wouldn't have been possible without the investment the Stellantis Group has made in racing cars. Alfa Romeo competes in Formula 1, DS in Formula E and Citroen in the World Rally Championship and Le Mans. It's hoped that competitions such as the E1 Powerboast series can do achieve similar results for the maritime industry

The results of the money ploughed into innovation for these competitions eventually finds its way into Stellantis's street models. The investment in sustainable propulsion solutions being made by the superyacht sector is bound to trickle down to other forms of nautical transport., Leon says.

**“All of the competitions are fundamentally aimed at advancing technology for our models which can then be passed on to our street vehicles,”** he says.

# MB92: Committed to Change

## MB92'S LONG JOURNEY TOWARDS SUSTAINABILITY

MB92 was already grappling with ways to curb environmental damage more than 25 years ago when it built the first paint shed in the Mediterranean, enabling yachts to be painted under cover.

A quarter of a century later their drive to become more sustainable has gathered pace. In 2021 they embarked on a multi-million euro investment plan that cements it as the most environmentally-diligent yacht maintenance refitter in Europe.

The plan consists of six pillars, five of them focusing on environmental issues and one on social wellbeing, with an equal amount of action allocated to each pillar every year to ensure no area is left behind, says Sustainability Coordinator Marc Hervás, who joined the group in February 2020 to oversee a period of investigation, resulting in the plan that was announced in March this year.

With little industry guidance available to him, Hervás took inspiration from other sectors as he put together the plan.

**"When you're starting something like this virtually from scratch with few references to use as guidance, you need to process a lot of new information,"** Hervás says.

Most of the attention in sustainability for the superyacht industry has been focused on the construction side -- on reducing operational impact when the boat is occupied and in motion. But there's just as much -- even more -- that can be done to reduce the industry's carbon footprint during the maintenance process, says Albert Willemsen, environment advisor to the International Council of Marine Industry Associations, who also advises MB92.

**"A refit or rebuild project still needs a shipyard and that should be sustainable as well,"** Willemsen says.

One pillar is to reduce airborne emissions and a key measure undertaken by MB92 at its Barcelona shipyard has been to secure onshore power from renewable energy sources so that 99% of the

yachts that dock there don't need to use diesel generators. MB92 has an agreement with a power company to supply electricity only from renewable sources.

That can be a challenge when dealing with the power demands of some of the larger yachts MB92 is used to accommodating. The company has made significant investments and research into developing better solutions for the longer yachts. For boats longer than 120 metres it now uses a mobile substation in a container, with additional modular solutions offering extra features such as frequency conversion, that can be transported from dock to dock.

Paint can also be a source of harmful emissions. The technology used to stop contaminated particles being released into the atmosphere is complicated and expensive. The emissions are channelled into a tube that is funnelled to a 'washing machine' that mixes the air with water, retaining some of the contaminating compounds. Ozone is injected into the mix as an agent to facilitate a more efficient process in breaking up the particles.



Painting afloat is cheaper and quicker for the customer but represents a high risk of marine contamination so MB92 has introduced a policy of only undertaking full paintworks onshore, or dry hard-standing areas, as it's known in the industry. Painting onshore also enables greater control of environmental conditions, improves quality and reduces the need to repaint.

In addition, they're also working on mobile solar-powered temperature control units, required to ensure the best paint finish, which will enable them to further reduce their carbon footprint.

**"For us it's a business strategy to start setting these limitations" Hervás says. "Our clients can see that we are saying no to a piece of the cake with some business going to less conscientious yards in an effort to be more sustainable, but we think that this approach will pay off in the long run."**

MB92 has also been working with the Water Revolution Foundation to fine tune a tool that allows them to calculate the carbon footprint of each project they undertake. The calculation allows clients to see where they can make their yachts more sustainable, and they're given the option to offset their footprint by contributing to local biodiversity projects such as protecting fin whales or replenishing Posidonia seagrass in the Mediterranean.

Hervás says that as well as the work done in the car sector he also took inspiration from the food industry, particularly a project by some UK supermarkets to create a traffic-light system that grades food products by their sustainability.

**"If you are not calculating it, you don't have any motivation to reduce it,"** Hervás says **"So it was very inspiring to see that image of the supermarkets with all these carbon footprint measurements on the products."**

MB92 also has single-use plastics on its radar. Despite providers' claims, some material such as plastic protective coverings used to protect the yacht during a refit cannot be recycled because of damage or paint contamination during the project. The company has invested time in sourcing alternatives and procedural changes to improve recyclability and reusability.

The shipyard in Barcelona has also signed up to the Seabin Project, which uses baskets to capture plastics and other organic materials that are washed into the port from the Mediterranean by the tide.

The group is investing 45M€ in a 4,300-tonne shiplift in La Ciotat, giving clients an environmentally conscious dry-docking option. The building of the lift will include the construction of the largest port-based artificial fish nursery in the world, certified electricity transformers that take into account their impact during their entire lifecycle and water treatment plants that prevent pollutants from returning to the sea using a filter system of drains.

In the first five years, MB92 plans to focus on its own internal sustainability but to be truly effective the plan needs to incorporate the full supply chain.

**"We have already seen a number of projects implemented in conjunction with providers which is certainly encouraging. Furthermore, they are seeing the benefits of more sustainable solutions through cost savings and the awarding of more work. Our aim is to see this approach be adopted throughout the supply chain" Hervás says.**

The EU is providing financial support for companies willing to switch to sustainable practices and MB92 is helping some of them to make that change.

Further into the future MB92 plans to help yacht owners transform their yachts to become greener. It's also working with the local government and universities in Barcelona to convert the Mediterranean city into a hub for the blue economy, harnessing ocean resources in a sustainable way to promote economic growth.

MB92 CEO Pepe García-Aubert says the medium-term plan is to be as close as possible to 100% sustainable by 2030.

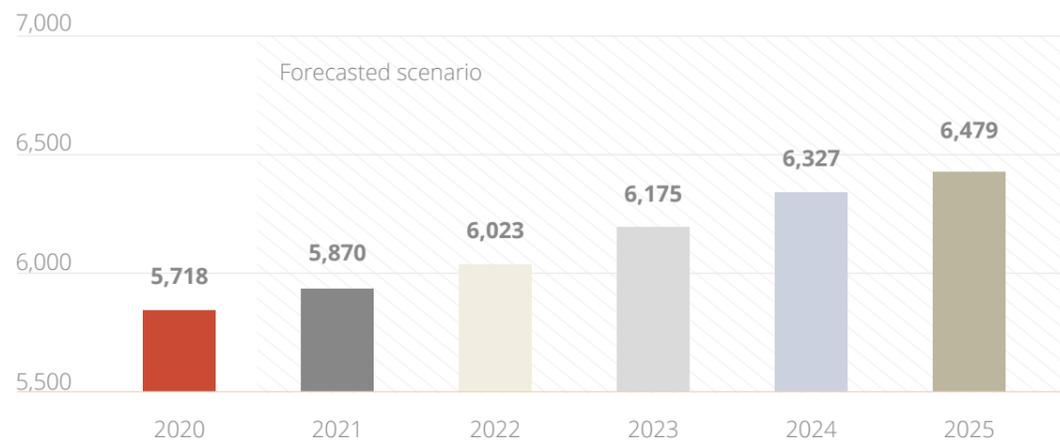
**"Our end goal is to be net zero in our footprint,"** García-Aubert says. **"We need to work hard on this because the years pass quickly and it's just around the corner."**

# 07 The industry in numbers

## A FAST-GROWING SECTOR

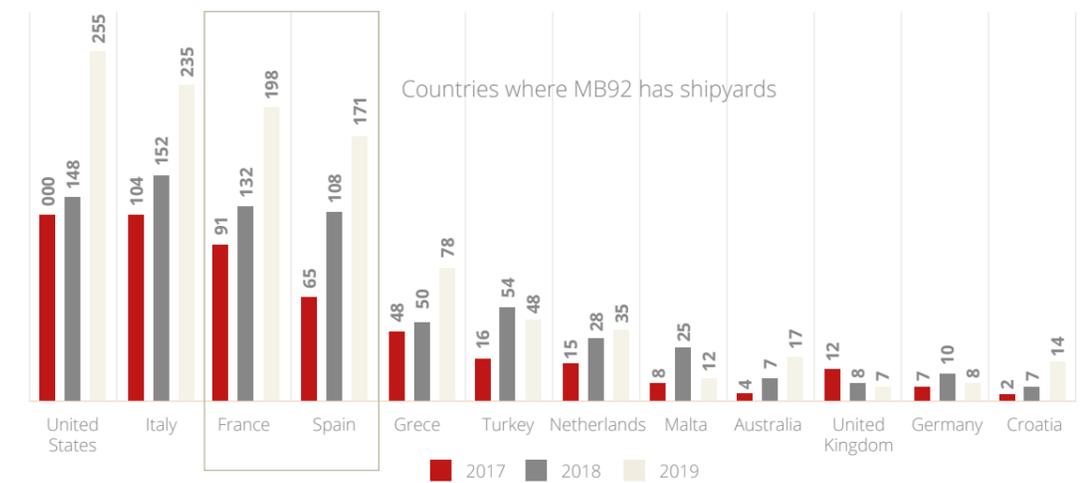
MB92 operates in a fast-growing industry: that of maintaining and refitting superyachts. Growth is driven by two main factors: a swelling fleet of boats on the water means upkeep needs are growing. Data compiled by Superyacht Group, a publisher focused on the yacht segment, estimates that the total fleet of large yachts will grow at a healthy clip for the next five years, to 6479 ships in 2025, compared to 5,718 at the end of 2020. Secondly, after 20 years of steady industry growth, the maintenance and refitting needs of the fleet are rising, as owners seek both to modernize their vessels and to reduce their environmental footprints.

### SUPERYACHT FLEET GROWTH FORECAST



Source: MB92, based on SuperYacht Group figures

### SUPERYACHT VISITS PER COUNTRY



Source: Superyacht Times IQ, based on yachts >30 metres

# 08 MB92 in numbers

## THE WORLD'S LARGEST REFITTING GROUP

MB92 is the largest superyacht refitter in the world. At its facilities in Barcelona and La Ciotat, 330 employees and more than 1,750 indirect employees focus exclusively on maintaining and refitting boats. This makes the firm a key part of the industrial fabric in both Spain and France, given its constant need to hire highly skilled specialists for projects. The shipyards have also invested heavily in infrastructure to be able to handle the largest ships in the industry. A shiplift in Barcelona, with a capacity of 4,800 tonnes, is the largest of its kind in the world, and another one in La Ciotat, with capacity to lift ships of up to 4,300 tonnes, will be ready in 2022 for a total investment of 95 million euros.

### MB92 GROUP

185

Projects per year

330

Direct employees

30+

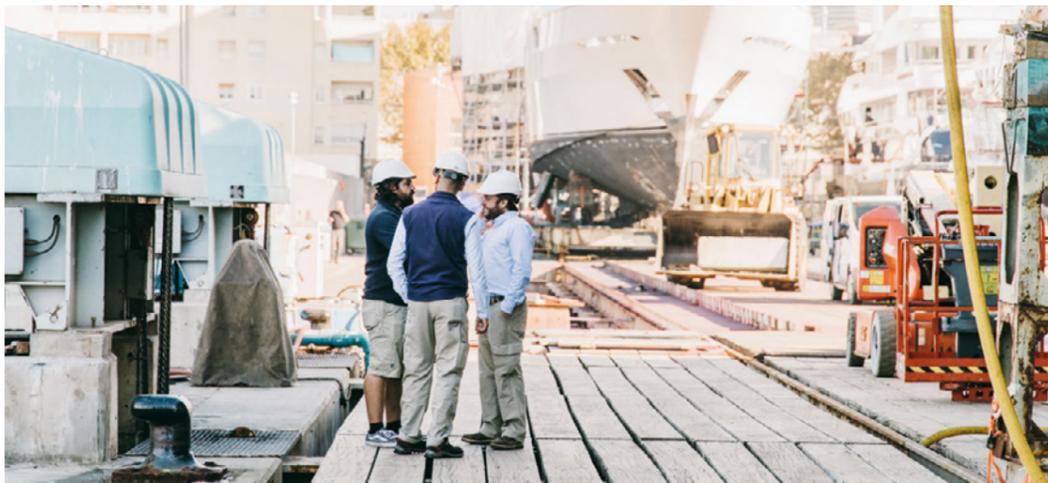
Projects >100m LOA

20+

Nationalities among the permanent staff

1,700

Indirect employees



## THE COMBINATION OF MB92 BARCELONA AND MB92 LA CIOTAT PROVIDES VIRTUALLY LIMITLESS DOCKING SOLUTIONS:

3 travel lifts/  
high capacity  
crane

600t crane  
300t travel lift  
150t travel lift

4 shiplifts

4,800t: 9 slots  
2,000t: 4 slots  
2,000t: 4 slots  
4,300t: 6 slots coming in 2022

2 dry docks

220 metres  
200/350 metres

50-metre  
paint cabin



**MB92** / **GROUP**



info-barcelona@mb92.com  
info-laciotat@mb92.com  
mb92.com

MB92 Group Headquarters  
Passeig Joan de Borbó, 92  
08039 Barcelona, Spain  
+34 932 24 02 24