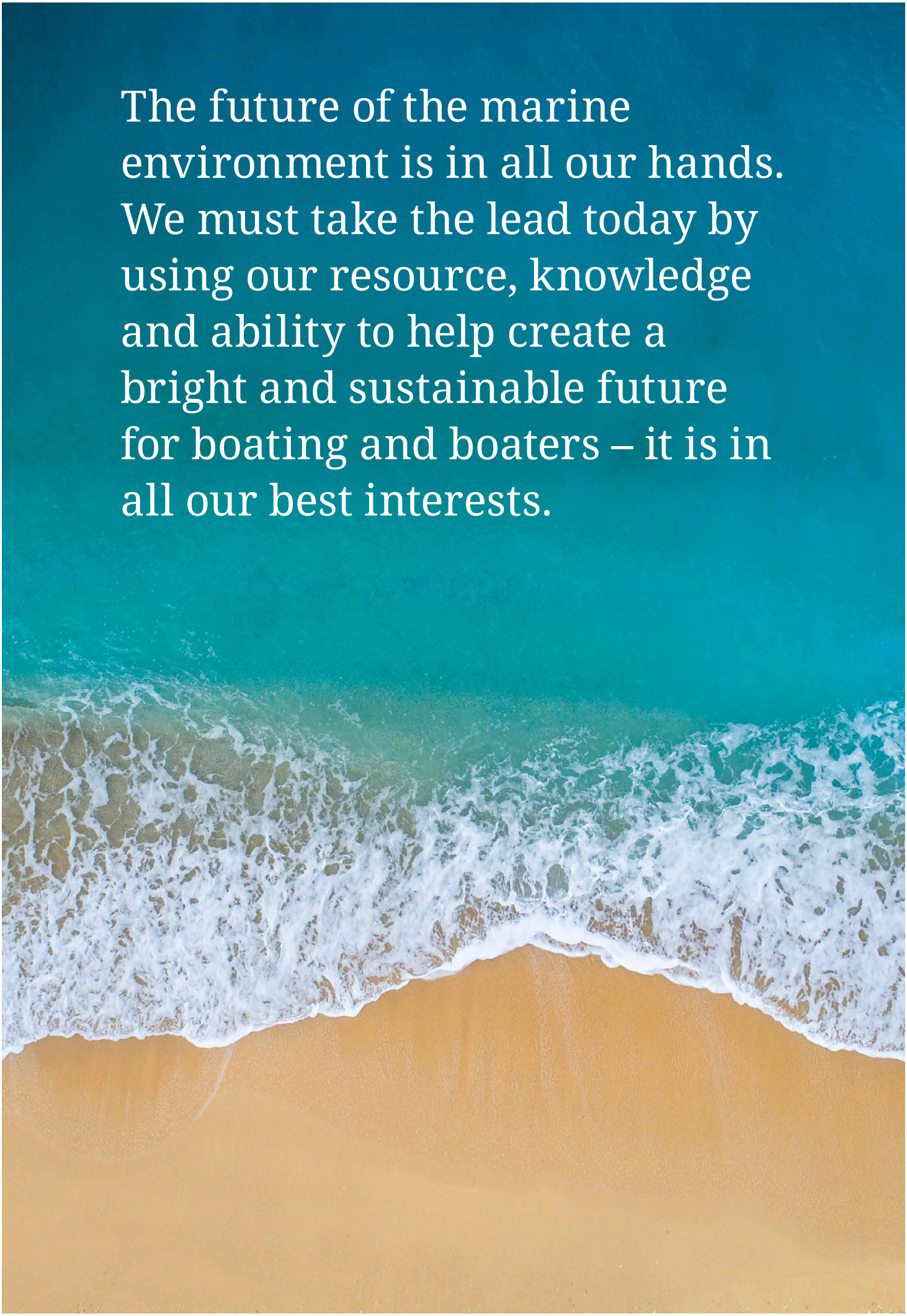
National Environmental Roadmap

Part 1 – Version 1 May 2020


The future of the marine environment is in all our hands. We must take the lead today by using our resource, knowledge and ability to help create a bright and sustainable future for boating and boaters – it is in all our best interests.

Contents

With increasing demand for solutions that will not only mitigate environmental impact but allow the development of technology, materials, and design, the following roadmap will support growth in our sector on a sustainable level, increasing market share, and ensuring commercial stability in the long term.

Executive Summary

The Recreational Marine Industry in the United Kingdom has always been a world leader, from design and manufacture to the development of technology and materials and as such, we have the resource, knowledge and ability to lead the way in the global challenge of protecting the marine environment.

This document has been developed to provide our members with a foundation upon which to begin tackling the many environmental challenges that we are facing as an industry. This roadmap directly reflects the concerns that industry has, incorporating them with the government's agenda, aims and objectives.

The roadmap will form the basis of the development of industry solutions in the six key areas which were highlighted by a survey of our members from both the inland and coastal sectors. With increasing demand for solutions that will not only mitigate environmental impact but allow the development of technology, materials, and design, the following roadmap will support growth in our sector on a sustainable level, increasing market share, and ensuring commercial stability in the long term.

The next stage of the project (part 2) will be to disseminate the results of the roadmap to industry. British Marine will create industry specific working groups to tackle the priorities that have been highlighted using the roadmap as a baseline. The groups will look at how industry change can best be implemented and the specific targets and requirements that ned to be met. British Marine will lead this by engaging with stakeholders, at both member and government level to find enabling solutions, including technical, operational and financial.

Background

Over the last few years there has been an increased awareness of environmental issues, from climate change impact to air and water quality and plastic pollution. Internationally climate accords and agreements to reduce CO_2 levels and other emissions have set targets at international and national level and within the UK tackling water quality, noise pollution, single use plastic (SUP) and the reduction of chemicals and biocides harmful to the environment have been prioritised by the government.

Social awareness and response to environmental issues have increased, not only from the public but other industry sectors, other large-scale industries including Automotive, Airline and Shipping have started looking at manufacture, fuel efficiency, materials and end of life product solutions to reduce and mitigate their environmental impact.

The UK government has developed a 25-year National Marine Plan for a sustainable marine and coastal future whilst a new Environment Bill is currently going through parliament having been a pillar of last year's general election, and this year a new Office for Environmental Protection will be set up to ensure that legislation and policy is correctly implemented and enforced.

Objectives and Scope

British Marine has made the environment one of its key strategic commitments in our National Agenda and this new Environmental Roadmap is a foundation on which British Marine will develop and expand its environmental commitment and lead the way for the recreational marine industry.

The recreational marine sector has a number of challenges on the horizon, not only to ensure compliance with specific current and future environmental legislation, but also in its contribution to national targets such as emissions.

The industry must develop a long-term sustainable business model for the future and the protection of the marine environment upon which our industry relies, must be a priority. Without clean healthy seas, strong biodiversity and a thriving coastal leisure/industry base, the industry will face an uncertain future.

The objectives of this roadmap are to:

- Provide continued focus and support allowing the marine industry to achieve environmental sustainability.
- Highlight resources and technology to support the sector and businesses.
- Set out a framework and foundation upon which environmental initiatives and solutions can be built.

It will reflect the concerns of the members based on the results of the environmental survey, Industry best practice and social trends. The roadmap will lay out the pathway and timetable for the recreational marine industry to come together to consider requirements, best practise, set achievable targets and prioritise workstreams.

The roadmap will also identify those areas in which the industry needs to focus innovation and research and development to find manageable solutions where there currently are none.

Approach

This report provides the consolidated output of a series of workshops that took place with members of British Marine during 2019/20. In all over 360 industry members from over 200 marine companies and businesses contributed to the development of the roadmap through their participation in these workshops.

This report focuses on the results of those workshops, analysing the risks identified and setting out a pathway for industry to assess the challenges faced, implement the changes required and achieve alignment with government objectives and consumer requirements.

There is a new drive and commitment to look at technology, materials, propulsion, green energy and design in the marine sector, this drive being not only to reduce environmental impact but also reflect the changing face of recreational water sports and leisure.

Global Trends and Drivers

The signing of the Paris Climate Accord in 2015 was a worldwide acknowledgement that climate change is one of the major challenges we face this century. Rising sea temperatures, declining fish stocks and evidence of plastic and micro plastic in every sea and ocean in the world is a warning that the heath of the environment cannot be ignored.

Many countries have committed to reduce CO_2 Emissions through the reduction in their reliance on fossil fuels, the localised risks to health from air pollution have been recognised and are at the top of every politicians and local authorities to-do list and the European Union has set targets for reducing waste, increasing the recycling of materials and limits on air emissions across all sectors.

There is a new drive and commitment to look at technology, materials, propulsion, green energy and design in the marine sector, this drive being not only to reduce environmental impact but also reflect the changing face of recreational water sports and leisure.

The demographic of how and when people want to engage with the sector is changing. As an industry, we need to offer our customers the products and experiences they desire while working towards the minimal environmental impact they are now demanding.

Members Environmental Survey

Summary

British Marine started with a list of environmental challenges facing the industry, those challenges were then segmented into the timeframes, Short, Medium and Long Term.

British Marine members were then asked to review and prioritise those challenges at over 30 external events, council meetings, association meetings, AGMs, and workshops during 2019 and early 2020.

The results from the workshops were correlated, highlighting the key concerns of our members within each timeframe.

This Environmental Roadmap is based on the results of this survey and current regulatory requirements, whilst also factoring environmental social trends and proposed government regulatory changes.

Environmental Survey Results

The following priorities were highlighted by the Survey within the timeframes set out.

Timeframe		*Industry Priority*
Short Term:	1 – 5 Years	Recycling and Waste
Medium Term:	5 – 10 Years	End of Life Vessels
Long Term:	10 – 25 Years	Air Pollution

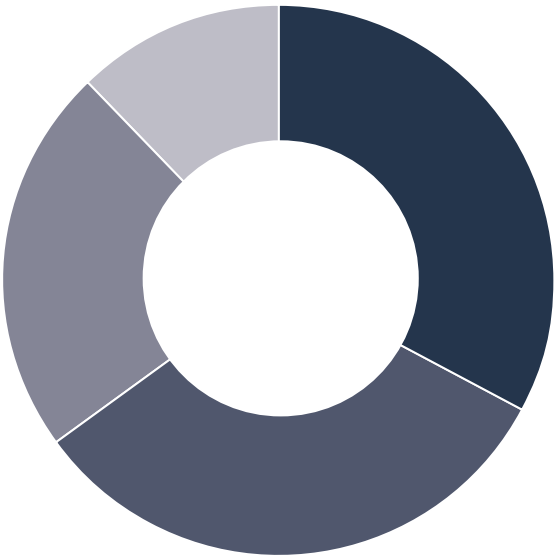
Full Survey Breakdown

Short Term 1–5 Years

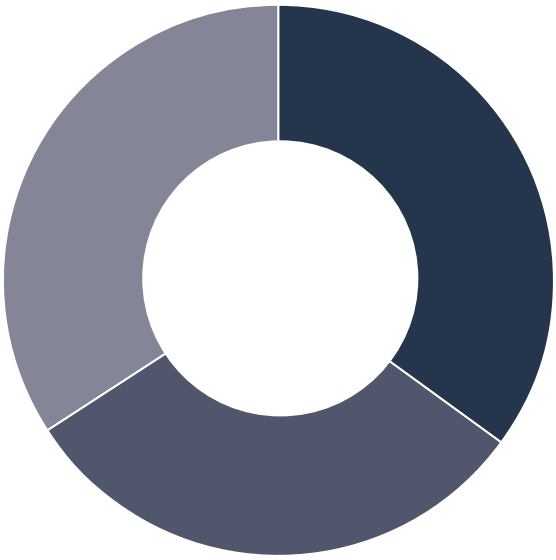
Recycling, which has been driven in part by greater public awareness and pressure and the increased cost of waste management was highlighted as the top challenge. Water and Air pollution were also key concerns reported, which was aligned with the governments focus and prioritisation at the time of the survey and the expected resource requirements needed to meet these challenges. Materials were also cited, availability of certain traditional boatbuilding materials are becoming more challenging along with the increased supply costs of some metals, whilst the phasing out of some materials used in the build process, which are being classed as more hazardous to human and environmental health, was also seen as a risk.

Medium Term 5–10 Years

Finding a solution for End of Life (EOL) vessels has come more into focus as an environmental challenge in the last few years, this has translated into the results of the survey with EOL being the highest rated environmental challenge to the industry in the medium term. Both Water and Air pollution were again raised which reflects industries view that the required changes in improvements to both areas will need to happen over a sustained period.



Recycling	33%
Water Pollution	32%
Air Pollution	23%
Materials	12%



End of Life Vessels	35%
Water Pollution	31%
Air Pollution	34%
No Response	0%

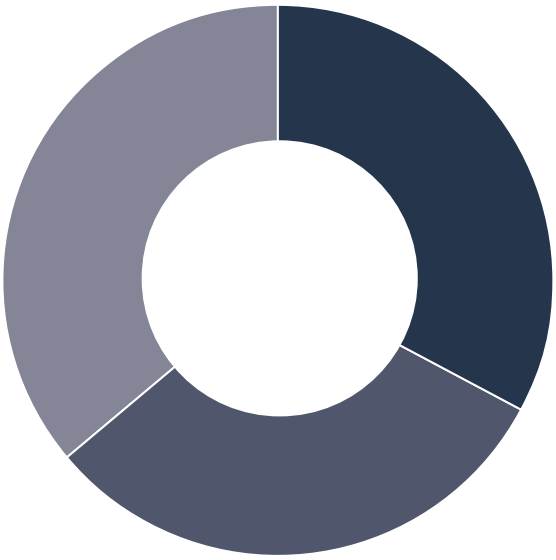
Full Survey Breakdown (continued)

Long Term 15–25 Years

Water and Air pollution remain an industry challenge in the long term, separated by Climate Change. The industry is already seeing the business challenges associated to climate change with the impacts of changes in weather patterns leading to both increased flooding and droughts, and the extreme weather events that are increasing in number but the long term impact was also highlighted with the risk of sea level rises that would be damaging to the industries infrastructure given the large percentage of coastal marine businesses being based on or adjacent to the shoreline.

Use of the Data in the Roadmap

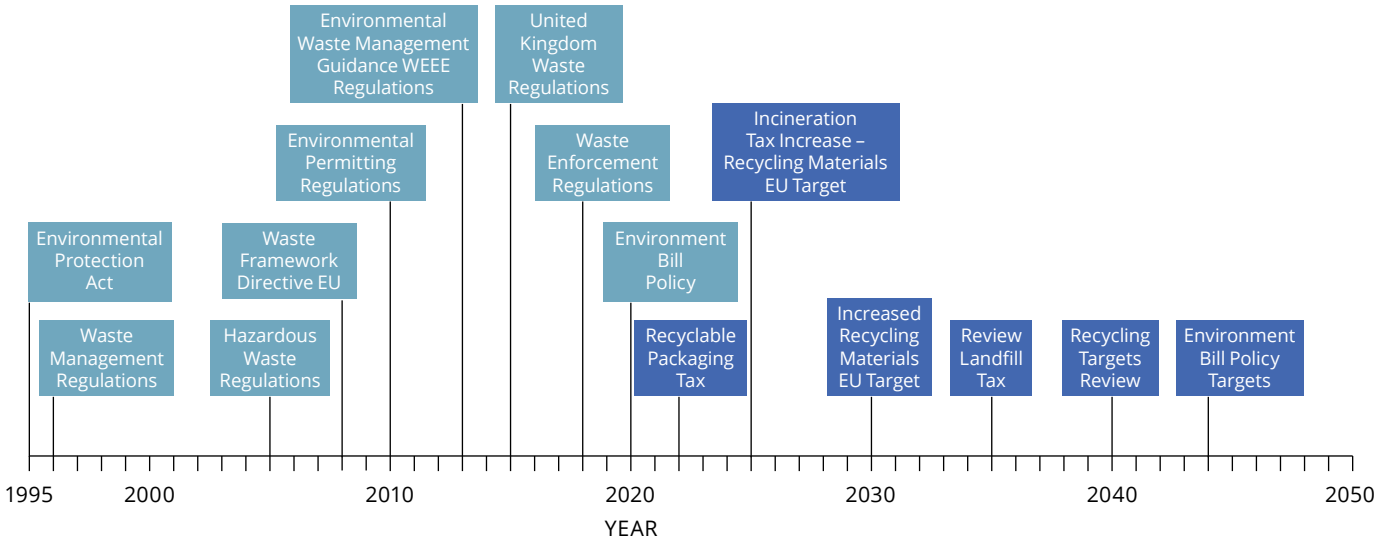
Based on the response from members, the roadmap will set out the current regulations and future government objectives within each area of environmental challenge, detailing what objectives need to be met by industry to comply with the regulations and targets both set by government and indicated as future expectations.



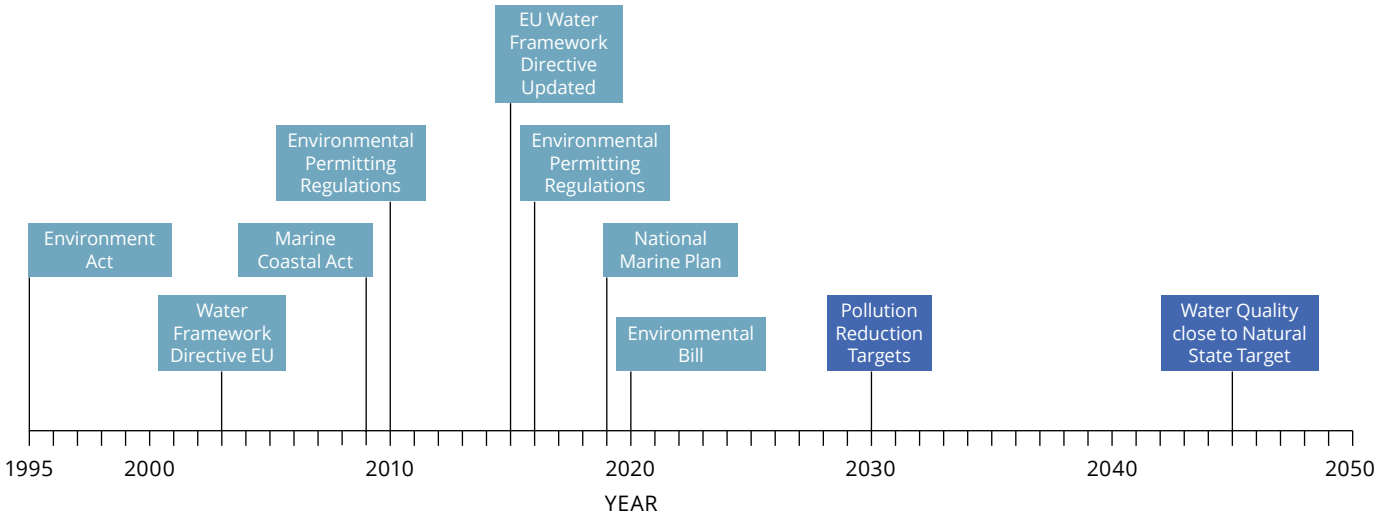
Climate Change	33%
Water Pollution	31%
Air Pollution	36%
No Response	0%

Environmental Timelines – Legislation and Set Targets

Recycling and Waste Management

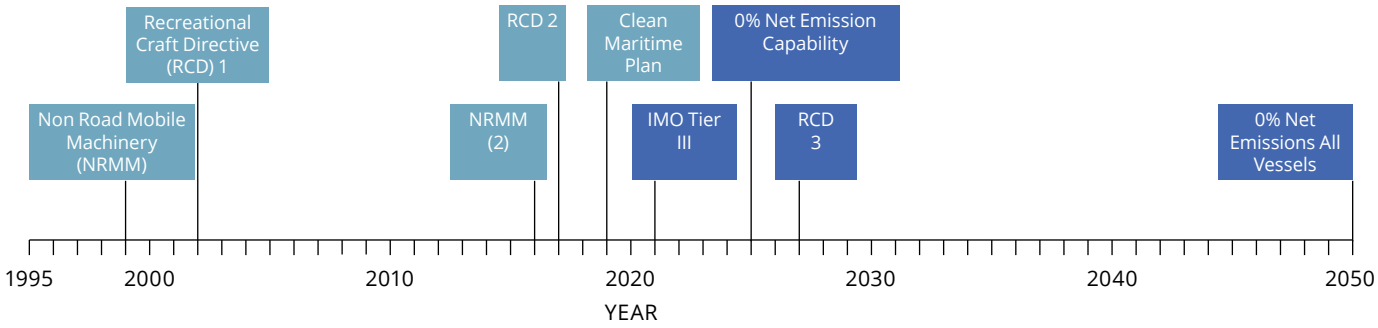


Water Pollution

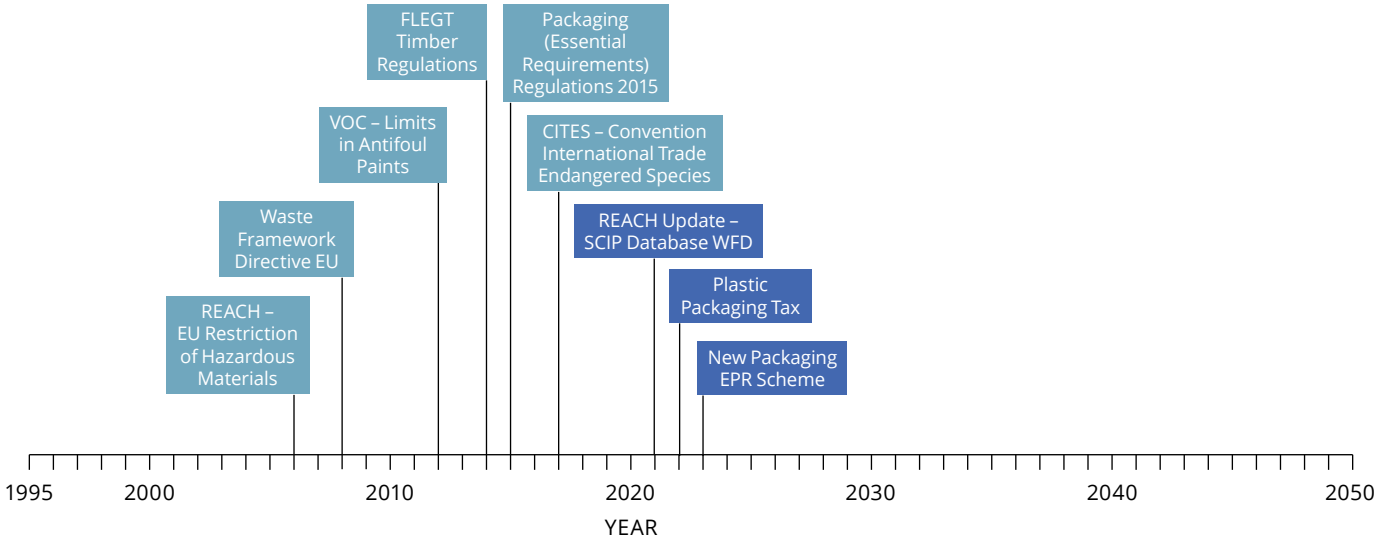


Environmental Timelines – Legislation and Set Targets (continued)

Air Pollution

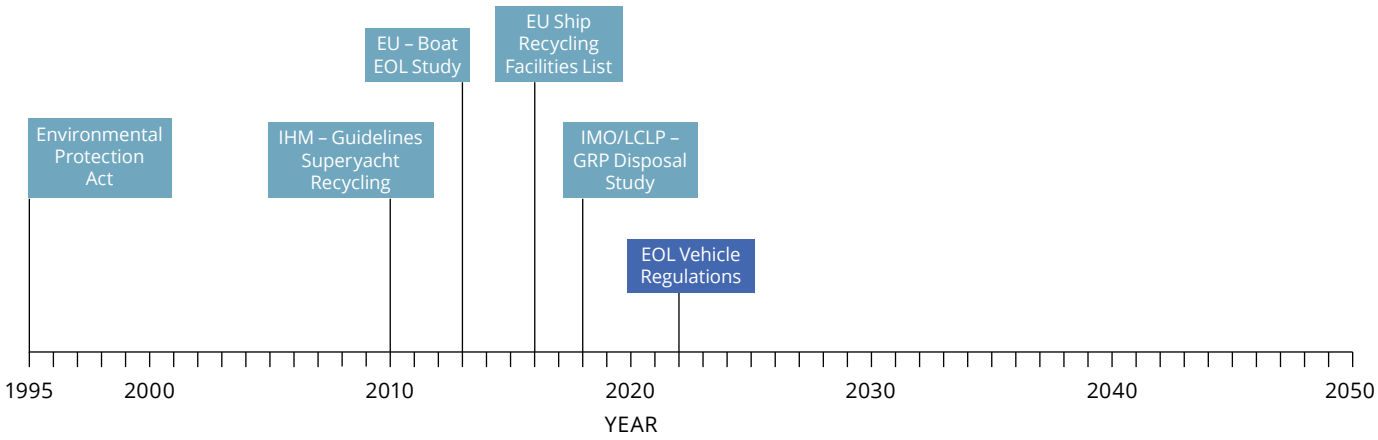


Materials

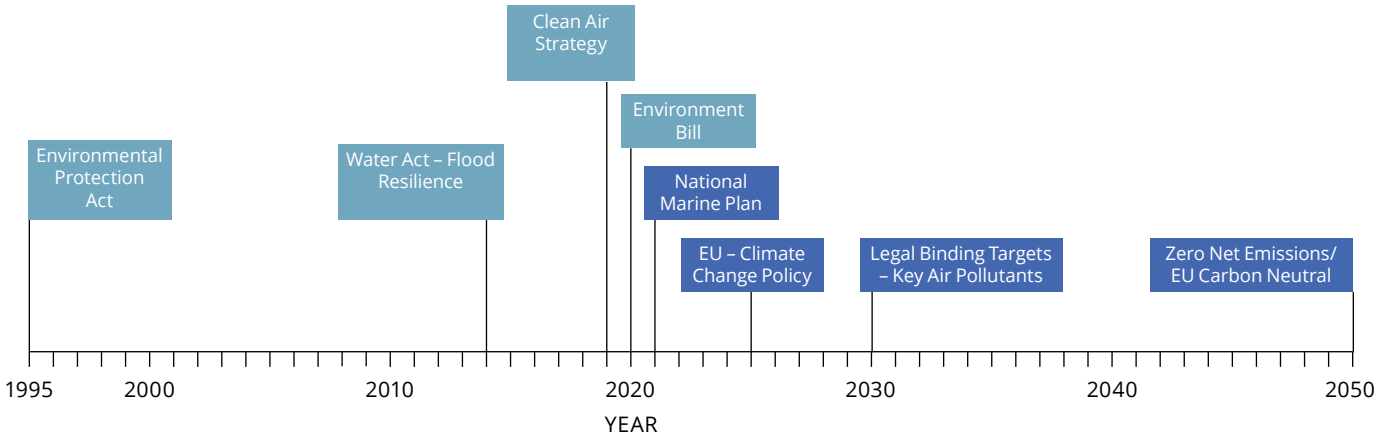


Environmental Timelines – Legislation and Set Targets (continued)

End of Life Vessels (EOL)



Climate Change



The recreational marine industry is reliant on a marine environment that is sustainable, has a thriving ecosystem and is clean, a place where people want to spend leisure time.

Implementing Environmental Changes

Overview

The environment, sustainability and biodiversity are now key components of UK government policy and legislation. The recreational marine industry is reliant on a marine environment that is sustainable, has a thriving ecosystem and is clean, a place where people want to spend leisure time.

We therefore need to be proactive and consider what can be achieved within individual businesses. There are also legislative requirements that need to be complied with, and future environmental targets and practices that will need to be adopted.

The government agencies who are responsible for the environment, some of whom have enforcement powers, will be looking for evidence that we are achieving compliance and mitigating environmental damage.

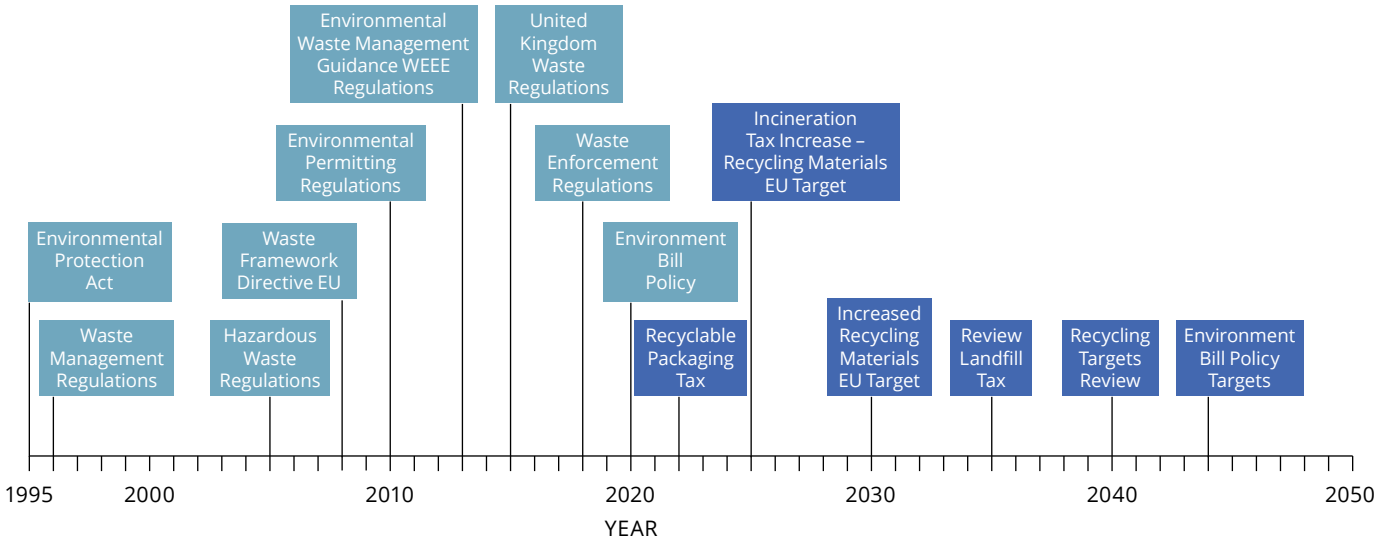
The survey subjects and members concerns have been looked at as individual areas that need to be addressed and with key points to focus on. This is still a base platform which highlights the challenges faced, and how they can be dealt with.

Process Post Roadmap Publication - Part 2

- British Marine will focus in detail on each Sector with a specialist working group to analyse the pathway to the objectives.
- Hold key workshops at BM events for the industry to attend
- Engage with government and regulatory bodies to highlight large scale needs and resources
- Provide specific guidance and resources for members to achieve environmental goals
- Ensure that the industry is able to achieve compliance and meet government targets
- Ensure BM members are able to integrate environmental changes into their business model and contribute to a sustainable future.

Waste Management and Recycling

Recycling and Waste Management



Waste Management and Recycling has become a sector priority following a significant change in consumer awareness of the results of mass production, materials use, the landfilling of waste and the impact of waste streams on the marine environment. Governments focus on this area has risen in alignment with the public and with the increased focus on the environment in general, waste and recycling are seen as an area in which environmental change can be influenced through the imposition of financial levers. Business will have to keep up with these changes or risk increased financial burden.

Waste management is changing and the EU principles of Extended Producer Responsibility and the Waste management hierarchy is leading these changes:

'Extended Producer Responsibility' (EPR) is an environmental policy approach through which a producer's responsibility for a product is extended to the post-use stage. This incentivises producers to design their products to make it easier for them to be reused, dismantled and/or recycled at end of life.

Waste management strategies must aim primarily to prevent the generation of waste and to reduce its harmfulness. Where this is not possible, waste materials should be reused, recycled or recovered, or used as a source of energy. As a final resort, waste should be disposed of safely (e.g. by incineration or in landfill sites).

Reduce Waste and Increase Recycling

Current Position

UK-wide producer responsibility (PR) schemes are already in place for four waste streams, putting a level of financial responsibility on producers for their goods at end-of-life.

The Government through implementation of new regulation, The Environment Bill and the National Marine Plan, has targeted an increased reduction in waste and an increase in recycling as parts of its key objectives. The marine industry will need to increase focus in the management of both these areas to keep up with evolving requirements.

Actions to be Taken

Businesses need to ensure compliance with the current regulations and standards for all waste and recycling whilst preparing for the increasing requirements that are expected to fall within the new regulations being developed.

Increased targets for waste streams and recycling will need proactive actions or increased financial burdens on industry will be the result.

Businesses, manufacturers and marinas need to look at in house operations and see where improvements can be made in waste separation, reduction in use of SUP, choice of packaging and product design materials.

There needs to be improved management of hazardous materials in industry whilst within product design and manufacture, industry must support active reduction in use of these materials.

Future Cost and Impact

The government is considering increased taxes on landfill and waste incineration, EPR development with a new tax on non-recyclable packaging will come into effect April 2022.

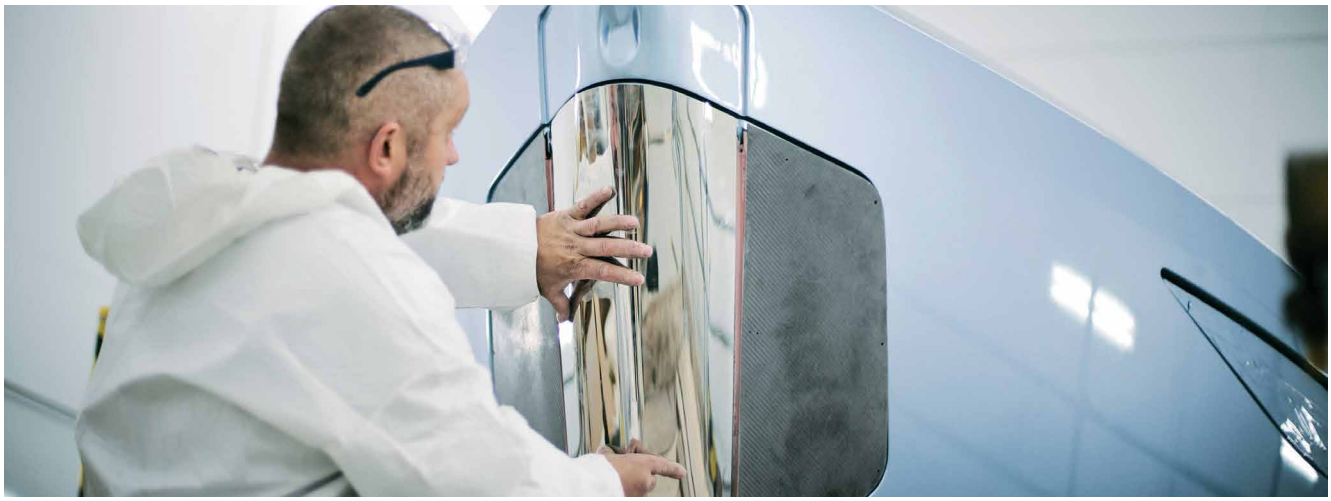
Reduction of Waste - Environmental Impact

Single Use Plastic and other polythene products (many used in packaging) are currently causing extreme damage to the marine environment and its eco systems. This also has the potential to affect public health –as microplastics are now making their way into the food chain. Reduction in the use of certain materials will assist with the reduction of damaging waste streams.

Resources and Technology to support reductions in Waste and improve Recycling

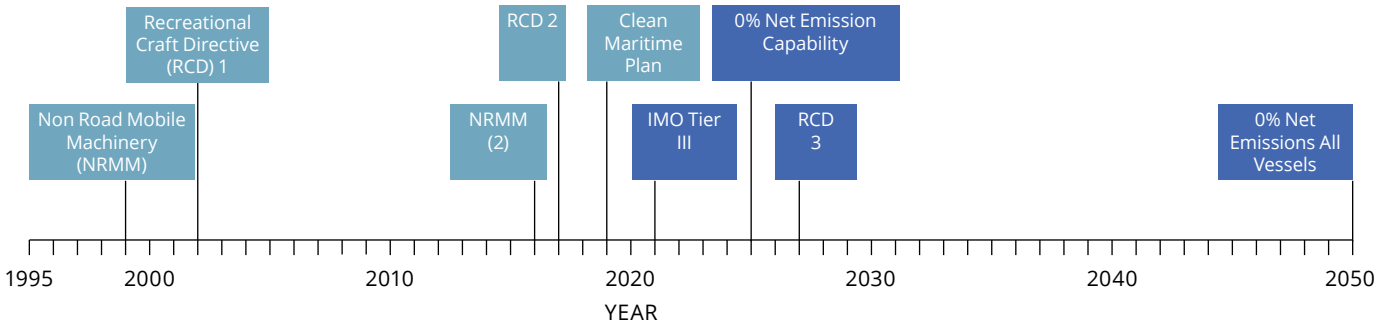
The following are examples of technologies, alternative resources and process and management changes that can support industry in meeting future objectives and targets.

- Greater use of recyclable and reusable materials and products
- Technology for the treatment of food waste onsite
- Eco-Design and manufacture
- Use of alternatives to hazardous materials and products
- Education and awareness for consumers



Air Pollution

Air Pollution



The UK Government has set an ambitious target of Net Zero carbon emissions by 2050 aligned with a national strategy on how to achieve this, The Clean Air Strategy has set out the following actions and objectives:

- Action to reduce emissions from transport
- Action to reduce emissions at home
- Action to reduce emissions from farming
- Action to reduce emissions from industry

This roadmap will focus on transport and industry considering the practicalities of both short and long term targets and enable British Marine to work with members, regulators and government to make them achievable.

Transport Emissions

Current position

A multitude of differing sets of emissions regulations that can differ based upon vessels, use, length, tonnage and operational area have created a fractured, complicated framework, combined with a lack of in use regulation has led to unknown quantities of propulsion emissions from the sector.

Current emissions regulations include, RCD 1, RCD 2, NRMM 1, NRMM 2, IMO Tier I, II and III.

The government is committed to driving down emissions from ships and reducing the impact of emissions from the maritime sector on the environment and public health. In 2019 the government published Maritime 2050 with the objective that

"in thirty years, the UK maritime sector will have negligible wider environmental impacts, with minimisation integrated into the full ship life cycle from design and construction to operation.

"In 2050, zero emission ships are commonplace globally. The UK has taken a proactive role in driving the transition to zero emission shipping in UK waters and is seen globally as a role model in this field".

This was soon followed by the Clean Maritime Plan setting objectives for the sector to achieve.

By 2025 we expect that:

i. *All vessels operating in UK waters are maximising the use of energy efficiency options. All new vessels being ordered for use in UK waters are being designed with zero emission propulsion capability. Zero emission commercial vessels are in operation in UK waters.*

ii. *The UK is building clean maritime clusters focused on innovation and infrastructure associated with zero emission propulsion technologies, including bunkering of low or zero emission fuel.*

By 2035 we expect that:

iii. *The UK has built a number of clean maritime clusters. These combine infrastructure and innovation for the use of zero emission propulsion technologies. Low or zero emission marine fuel bunkering options are readily available across the UK.*

iv. *The UK Ship Register is known as a global leader in clean shipping and the UK is home to a world-leading zero emissions maritime sector, with:*
   a. *A strong UK export industry*
   b. *Cutting-edge research and development activities*
   c. *The global centre for investment, insurance and legal services related to clean maritime growth.*

Actions to be taken

Whilst the primary actions will be in the design and construction of new vessels, maximising energy efficient design and research into alternative fuels and propulsion systems, due to the long lifespans of vessels there may well be change requirements for the existing fleet, retrofitting and replacement of existing propulsion systems.

Due to the lack of detailed data on the numbers, age and use of recreational vessels and the high cost both financially and in resource of replacements it is fundamental that more research is done into both the current impact of recreational craft use and lifecycle analysis on the possible replacement technologies to provide a clear understanding of environmental benefits of change.

Future Cost and Impact

The department for transport has indicated possible future policy development in this area during their Air Pollutant Emissions from Domestic Vessels and Inland Waterways Call for Evidence. Whilst confirming that the development of any new policy measure(s) will focus on what is proportionate and technically-sound examples of possible interventions included the Introduction of financial incentive or lever to reduce emissions and the Introduction of specific regulations for appropriate domestic vessels.

Reduction of Air Emissions Transport – Environmental Impact

According to the National Atmospheric Emissions Inventory (NAEI), emissions from domestic shipping (ships that start and end their journey in the UK) accounted for 10% of the UK's total domestic NOX emissions, 2% of PM2.5 and 7% of SO2 in 2016.

Resources and Technology to support Transport Air Emissions reductions

The following are examples of technologies, alternative resources and process and management changes that can support industry in meeting future objectives and targets.

- Fuel Additives
- Alternative Fuels
- Diesel Hybrid Propulsion
- Pure Electric Propulsion
- Alternative Fuel Hybrid Marine Propulsion

Other transport emissions

Current Position

There are a number of other areas within the industry which contribute to transport emissions, from delivery trucks through to boatyard machinery, each of these areas have their own set of regulations that apply to the emissions.

- Yard machinery and Equipment
- Forklifts (diesel)
- Travel Lifts and Cranes
- Towing Tractors and Portable Generators
- Delivery Vans and Lorries

Emissions regulations for these types of equipment can be varied and have been brought in over a number of years, however there are numerous pieces of equipment that were put into use pre-regulation and no current regulation mandating upgrading or retrofitting.

Non-road mobile machinery (NRMM) covers a wide range of machinery which moves or is intended to move (whether self-propelled or not) and contains a combustion engine.

Actions to be taken

Future Cost and Impact

The government is currently implementing more stringent emission standards which will be consistently applied across the wide range of engines used in NRMM from 2019 and drive a reduction in emissions with the turnover of the NRMM fleet. There is recognition that emission standards have delivered significant reductions in air pollution from NRMM and it is envisaged they will continue to be reviewed periodically to ensure they reflect what is technically achievable. The main focus is the turnover of the NRMM fleet, with no restrictions of fleet age there is a risk that government will be looking at the ability to retrofit technical solutions to emissions reduction for the existing fleets due to slow turnover.

Reduction in Transport Emissions – Environmental Impact

Globally and locally emissions contribute to the development of cancer; cardiovascular and respiratory health effects; pollution of air, water, and soil; soiling; reductions in visibility; and global climate change.

Resources and Technology to support other Transport Emissions reduction

The following are examples of technologies, alternative resources and process and management changes that can support industry in meeting future objectives and targets.

- Fleet turnover
- Fuel Additives
- Alternative Fuels
- Retrofitting of emissions reduction technology
- Pure Electric Drive
- Alternative Fuel Hybrid Drive

Reduce emissions from industry

Current Position

These processes are carefully managed to avoid significant impacts on our health and environment and this has already made a significant contribution to reductions in air pollution. The Industrial emissions Directive (IED) aims to prevent and reduce harmful industrial emissions across the EU, while promoting the use of techniques that reduce pollutant emissions and that are energy and resource efficient.

Actions to be Taken

Businesses need to ensure compliance with the current regulations and standards for all emissions whilst preparing for the increasing requirements that are expected to fall within the new regulations being developed.

Increased targets will need proactive actions or increased financial burdens on industry will be the result.

Future Cost and Impact

Working in close collaboration with industry the government will be exploring further opportunities for emissions reductions by developing a series of sector roadmaps to set ambitious, achievable standards aimed at making UK industry world leaders in clean technology. The roadmaps will identify where additional measures can be implemented within industrial sectors, focusing on the most polluting industries and those with the greatest potential to drive improvements in air quality.

Reduction in Industry Emissions – Environmental Impact

Globally and locally emissions contribute to the development of cancer; cardiovascular and respiratory health effects; pollution of air, water, and soil; soiling; reductions in visibility; and global climate change.

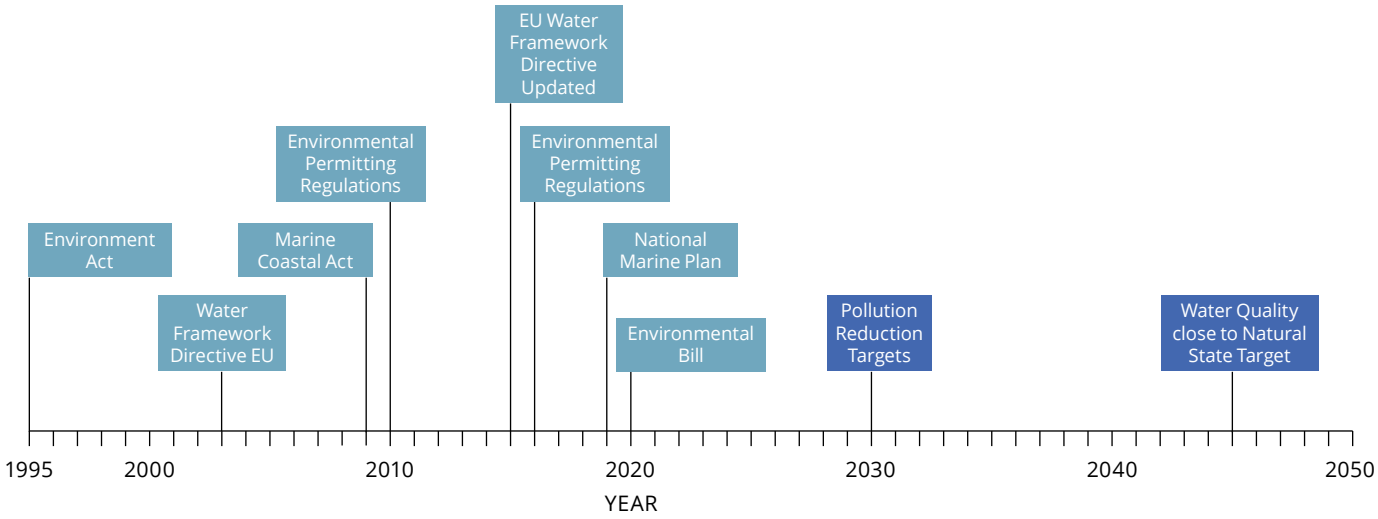
Resources and Technology to support Industry Emissions reduction

The following are examples of technologies, alternative resources and process and management changes that can support industry in meeting future objectives and targets.

- Clean power generation for business – Solar, Wind, Hydro
- Carbon offsetting Emissions

Water Pollution

Water Pollution



Water pollution in Coastal, Estuarine and Freshwater Environments is a focus of The Environment Bill, 25 Year Marine Plan and DEFRAS Biodiversity Strategy 2020. Without healthy waters the marine environment will continue to deteriorate to the detriment of our Industry. All recreational boating activity is reliant on a sustainable long-term marine economy.

With the National Marine Plan and Environment Bill, by 2045 the Government has targets to see all waters returned to as close to a natural state as possible.

Reducing in-water pollution

Current Position

While the Regulatory Framework is specific regarding 'Trade Effluent', which is deemed as any toxic runoff from a business, or facility entering the water, other areas of pollution are not covered, or if they are only in a general reference framework. The current regulatory framework has not kept pace with the increase in recreational sailing and the industry that supports it.

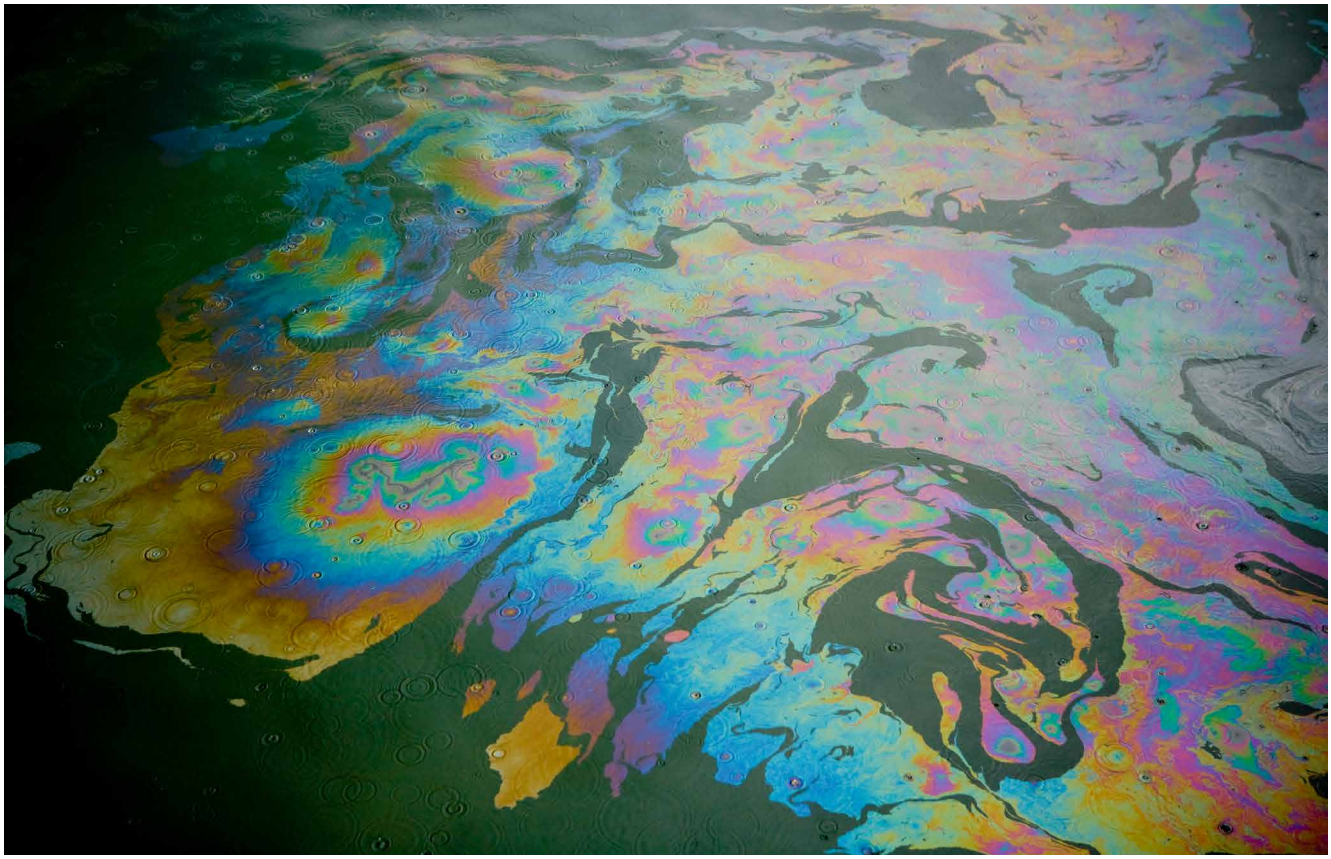
The government agencies responsible for environmental protection and regulations are now focusing more closely on the recreational marine industry.

There are new government set targets for returning water as close to its natural state as possible by 2045, included in the Environment Bill and The National Marine plan. They have created an office for Environmental Protection to work with other enforcement agencies, to ensure compliance with requirements.

Actions to Be Taken

All marine businesses, and operators need to be complying and implementing the current regulations and standards which govern water pollution. As an industry we are struggling in certain areas to keep pace with current standards and requirements and with legislation that is being introduced soon, there will be even more stringent levels imposed to achieve the governments long-term aim to have water bodies close to their natural state by 2045.

Boat manufacturers, marinas and boatyards need to consider their day to day operations in detail. Then begin to put into place procedures and equipment to mitigate water pollution from the effects of contaminated runoff and in water vessel discharge.



Future Cost and Impacts

The facilities and systems which can mitigate or eliminate water pollution from business need to be put into place or updated taking account of future increased limits. There will be a financial cost to businesses and advanced planning should be carried out.

Reduction of Water Pollution – Environmental Impact

A significant reduction in pollution levels will allow biodiversity and the marine ecosystem to begin recovering. This is will help offset CO_2 levels, contributing towards the targets for zero net emissions by 2050. This combined with a reduction in microplastics will support the marine food chains recovery. In addition, cleaner seas and beaches will encourage use and participation from the public in the marine sector.

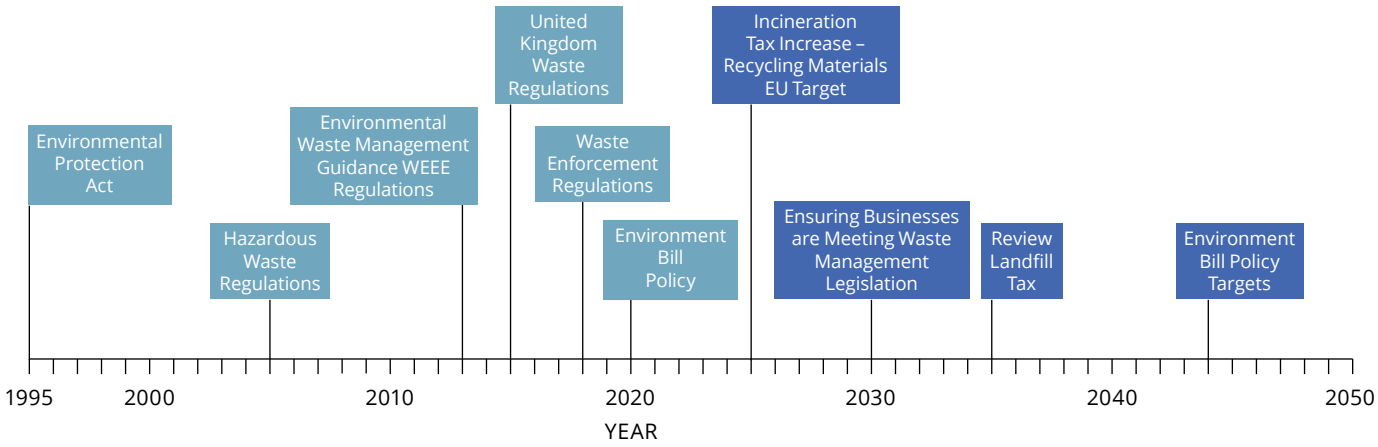
Resources and Technology to assist with Pollution Reduction

The following are examples of technologies, alternative resources and process and management changes that can support industry in meeting future objectives and targets.

- Installation of Capture and Filtration systems
- Improved onshore pump out and disposal facilities
- Increased use of less hazardous materials in manufacture and servicing
- Installation of onboard filters and waste treatment systems
- Education and awareness among users and consumers of pollution effects

Materials

Waste



The global supply and reserves of natural materials have been heavily impacted and, in some cases, decimated in the last century. Deforestation, an increase in need for agricultural land, and a steep increase in demand from certain sectors has put some wood in a critical position as a resource.

A global increase in demand for metals from copper & aluminium to rare metals used in 'smart' technology mean the industry is relying on the availability of resources with limited sustainability.

This does not just apply to the marine industry, but as a user the marine industry will need to be aware of the challenges and contribute towards solutions for this global problem.

Natural Material Resources

Current Position

The boatbuilding sector use a number of now limited hardwoods in various parts of a vessel, teak especially is found on a wide range of yachts and some rarer hardwoods are used in Super Yacht builds.

Rigging, deck and hull construction needs steel, aluminium, titanium and copper for machinery, frameworks and masts. An increase in 'smart' technology on yachts and more reliance on batteries for power will increase demand for rare earth metals.

We will be at a point soon where demand may outstrip supply with some materials and the sector needs to start expanding its reliance to more sustainable materials.

Actions to be Taken

Governments will be looking at where reduction in demand of natural materials can be found. There are current political restrictions on the import of some materials and whilst there is no current legislation to restrict what can be used, as supplies become more pressured costs could become prohibitive.

The marine industry needs to be considering what changes can be implemented on supply and demand to help with this, from design for recycling to greater efficiency in build methods, waste reduction and alternative materials, all need to be considered to ensure sustainable growth.

Increase in recycling and reuse of materials (covered in other sections) will also need to be implemented.

There is also the eco-design pressures that will soon become prevalent as governments place greater costs on manufacturers to built in recyclability and reusability to product design.

Future Cost and Impact

Scarcity of any material will lead to increased prices which will impact the industry. If the cost is passed onto the consumer, it will affect the sale of products. Should materials become in short supply or difficult to obtain, it will also affect timelines and delivery which would be detrimental across the sector.

Reduced Supply of Materials – Environmental Impact

As materials become scarce there will be a commercial need to look for other sources, could lead to mining in protected areas or habitats. Mineral extraction on the seabed could have a severe environmental effect on the marine eco system.

Resources and Technology to support alternative materials use

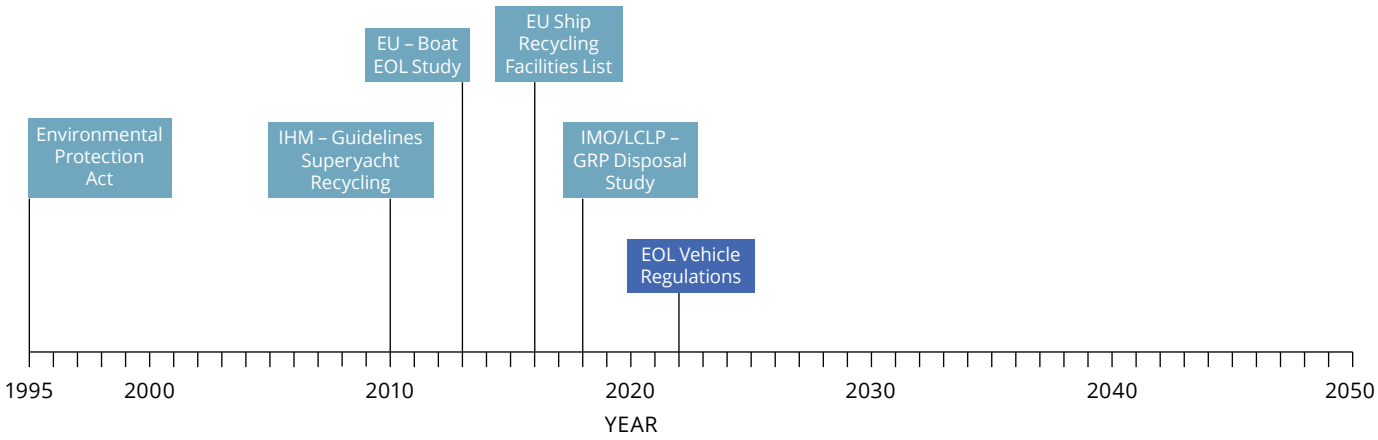
The following are examples of technologies, alternative resources and process and management changes that can support industry in meeting future objectives and targets.

- Use of sustainable alternative materials in vessel design
- Design and build more using advanced recyclable composites
- Aligning the technology used in racing yachts with mass produced yachts
- Working with other industries to develop environmental materials solutions
- Changing the perception of the consumer

As per the press release, **Spirit Yachts was joint winner of the SIBS Green Blue Environmental Exhibitor Award for its introduction of sustainable wooden decking and sharing environmental good practice and insight with other marine businesses.**

End of Life Vessels

End of Life



As an industry the issue of End of Life Vessels (EOL) and their disposal has become more focussed in the last few years. It is estimated that within the EU up to 80,000 vessels per year reach the end of their usable life.

The boom in the recreational marine sector following the mass production of FRP vessels has generated an industry with the repair, storage and berthing of vessels. With an average life of 30 years or more we are seeing an increase in vessels that are reaching EOL.

Current Position

The current regulations mean a vessel must be disposed of in an environmentally responsible manner which makes the disposal process more expensive and currently no dedicated facilities exist, where EOL vessels can be disposed of without adverse environmental impact. Storage costs for EOL vessels are high as it is based on vessel length.

Unlike the automotive industry there is no requirement for vessel owners to insure, register or maintain a vessel to an accepted standard. This has begun to result in vessels being abandoned in marinas, boatyards or on moorings with no accountability or recourse, as identifying owners is difficult.

Actions to Be taken

The industry bodies need to develop and implement a system which ensures a circular 'Lifecycle' for recreational and privately owned vessels including small recreational craft like dinghy's and RIBS. This may include built in financial consideration for disposal as part of the cost.

A national database for registration and ownership of privately owned vessels may need to be considered, as currently there is no accountability for abandoning a vessel.

The development and creation of proper facilities for the responsible disposal, recycling and reuse (where practicable) for EOL vessels.

Legislation may need to be updated to incorporate accountability and responsibility for owners of vessels.

Future Cost and Impact

If financial consideration for disposal of EOL vessels needs to be implemented, it will result in higher manufacturing costs that will be passed on to the consumer leading to a likely barrier to participation.

Currently the cost of disposing of abandoned EOL vessels fall on the owners of the land or facility where they are left. This is not sustainable for the industry and increased costs are passed on to consumers which also may have a market impact.

There will be resistance from many recreational boaters to the idea of a database and registration, as recreational sailing is currently lightly regulated however the industry concern is that it without a solution created and managed by industry the decision will be taken out of hands and a possibly unsuitable solution enforced.

Managed EOL Disposal – Environmental Impact

Proper regulated disposal will lessen environmental damage particularly form hazardous materials, fuel and oils. The efficient breakdown, reuse and recycling of a high percentage of a vessel will benefit in other areas of the industry.

It will encourage better design and build practices as design for disassembly is factored into this process, and the demand and development of materials to reflect this will be an environmental benefit. Perception of the lifecycle will change from both industry and consumer point of view, which will be a benefit.

It will create an environmentally based new industry sector to manage EOL, with the additional benefit of being able to dispose of other non-marine products. The natural environment would see a great improvement as all EOL vessels from yards, to moorings to land sites could be cleared.

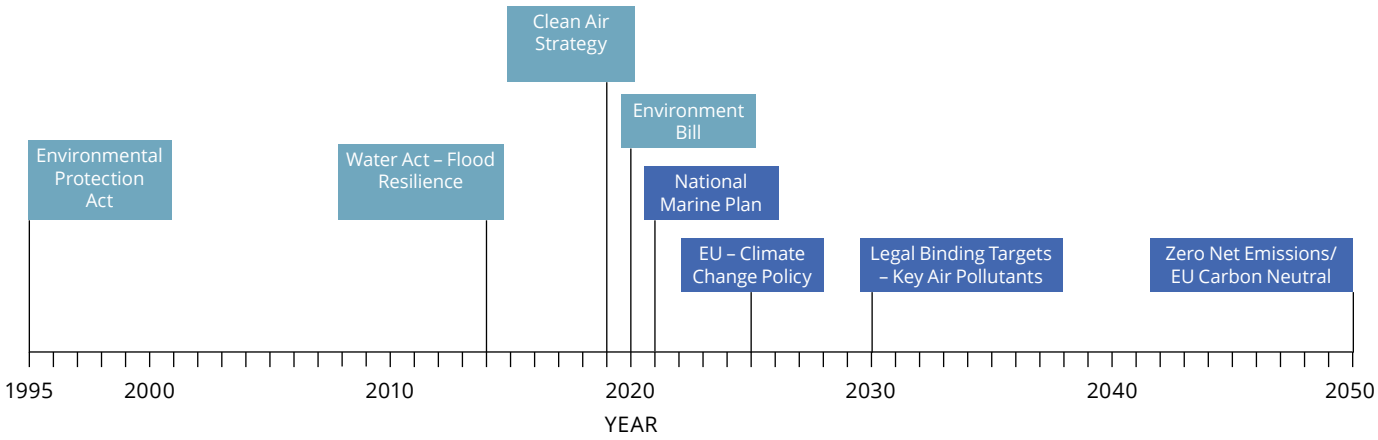
Resources and Technology to support an EOL Vessels solution

The following are examples of technologies, alternative resources and process and management changes that can support industry in meeting future objectives and targets.

- Range of eco materials available
- Design and build for EOL disposal
- Technology for recycling composites
- EOL vessel disposal funding

Climate Change

Climate Change



While climate change was listed as a long-term concern, we have been seeing signs both locally and globally of effects than can be attributed to it, flooding, more extreme weather and infrastructure damage and in some cases loss.

There is no guaranteed timeline with which we can rely on to guide to the changes that will be occurring. Factors like rising sea levels, and increased sea temperatures will affect ecosystems and the physical landscape and our ability to rely on them as a business resource.

Current Position

A very high percentage of the marine industry is coastally based and often adjacent to the sea and affected by tides and flooding. Any rise in sea levels would have an extremely severe impact on the industry on all levels.

If we can reduce the 'global warming' effect, which is an aim of the Paris Climate Accord then the impact will be lessened. All the sectors of this roadmap play a part in achieving this aim, and even small changes when put into a wider context can be significant.

Actions to be Taken

The industry needs to use the roadmap as a basis for implementing the necessary changes as its part of the overall reduction in pollution and environmental impact.

We need to engage with government agencies and other industry, sharing knowledge and resources so it is achievable.

Progress and change are going to be gradual, so the short and long term aims of the roadmap will reflect this. British Marine is going to work closely with its members, through working groups and workshops so the resource and support is there.

Future Cost and Impact

There will be a financial cost in some areas just to meet compliance and regulation, however this should be regarded as an investment for the long term, without a sustainable, reliable marine environment our industry will not be viable.

We will need to review the ways in which we operate, from design and build to the type of facilities and how they are operated which will benefit us in the future as we will be able to offer our expertise, knowledge and products to a wider market.

Climate change – Environmental Impact

Unless we can successfully tackle the big environmental problems, we are likely to see rising sea levels as a consequence of global warming. An increase in in both atmospheric and water temperatures could affect the industry, we have already seen extreme weather in the UK, and the patterns and effects are currently unpredictable.

What is in no doubt is that we need to act across all sectors in order to reduce the likelihood of this happening.

Resources & Technology to aid the fight against climate change

The following are examples of technologies, alternative resources and process and management changes that can support industry in meeting future objectives and targets.

- Ways to measure and monitor environmental improvements
- Design in marinas and harbours incorporating flood defences
- Planning for the future to account for significant likely change

British Marine represents not just its members, but the world class innovation, technology, knowledge, services, and products that they provide.

Conclusion

This Environmental Roadmap has laid out a timeline and framework for the recreational marine industry. It has given our members the opportunity to assess their position from an environmental perspective and enable them to plan for the future.

Making environmental change should not be done just for its own sake; it needs be an intrinsic part of business models, and an opportunity for growth. British Marine represents not just its members, but the world class innovation, technology, knowledge, services, and products that they provide.

Our members have won awards at many of the major boat shows and are a valuable part of the marine tourism sector. The UK maritime sector is seen as a global leader, environmental change and responsibility needs to be part of that equation. The Paris Climate accord was signed up to by 197 countries, many of them will be looking for products, services and resource that can enable them to meet their own environmental targets.

In 2018, British Marine pledged a long-term plan to minimise the environmental impact of Southampton International Boat Show. The initiative has seen a move away from single use plastics, the introduction of a sustainable fish only policy in our catering outlets and encouragement to travel by public transport. An Exhibitor & Contractor Environmental Charter has been launched as well as the Environmental Awards, won in 2019 by RS Sailing (pictured below) and Spirit Yachts.

Printed matter for the show has been reduced with a move to a digital booking system and showguide, on-site recycling has been maximised and 2019's pre-show beach clean is set to become a regular feature.

By committing to implement this roadmap and supporting business development there is the potential to increase global market share and customer base. Through boat shows, and events both in the UK and abroad this will develop, expand and strengthen the economy.

The UK government is committed to not only reducing our environmental impact, but to develop, support and expand the maritime economy. There are resources from R&D funding and grants available to businesses as part of this.

The next stage of the project (Part 2) will to be to disseminate the results of the roadmap to industry and create small industry working groups to tackle the priorities that have been highlighted. The working groups will review the roadmap and look to how industry change could be best implemented to achieve the targets identified. British Marine will support the review and continue to work with stakeholders on finding enabling solutions, technical, operational and financial and offer the guidance and support businesses will need to plan for our greener future.

Spirit Yachts and RS Sailing were joint first prize winners of The Green Blue Environmental Award at SIBS 2019 for their achievements environmentally at the Boat Show, Sunsail Yachts and Rockley Watersports won second and third. It is an example of how British Marine members can make sustainable practice and innovation a part of the business model and share resources and knowledge for wider improved environmental challenges. The Awards were presented by The Green Blue Ambassador Mike Golding. The Green Blue is a joint initiative by British Marine and the RYA.

Glossary of Abbreviations

BM	British Marine
DEFRA	Department of Environment and Rural Affairs
EA	Environmental Agency
EOL	End of Life Vessels
MIA	Motorsports Industry Association
MMO	Marine Management Organisation
NE	Natural England
RYA	Royal Yachting Association
UKHMA	United Kingdom Harbourmasters Association
WU	Water Undertakers

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