



Powering Healthy Seas: Accelerating Nature Positive Offshore Wind

AUGUST 2022



Credit: Ben Andrew (rspb-images.com)

Acknowledgements	2
Foreword	4
Executive summary	5
1. Introduction	8
2. Nature and climate	9
2.1. Nature and climate – the indivisible emergency	9
2.2. Nature in crisis – struggling seabirds	9
2.3. Offshore wind – a vital technology	11
3. Busy seas	15
3.1. Busy seas under pressure	15
3.2. Wider UK seas	16
3.3. EU context	16
4. Accelerating offshore wind and minimising impacts on nature	20
4.1. Protecting nature	20
4.1.1. Evidence base	20
4.1.2. Strategic research and monitoring	21
4.1.3. Cumulative and in-combination impacts	22
4.2. Emerging technology	23
4.3. The mitigation hierarchy	24
4.3.1. Marine planning	24
4.3.2. Adaptive management	26
4.3.3. Mitigation design standards	26
4.3.4. Project level compensation	26
4.4. Challenge and opportunity	27
4.4.1. Marine biodiversity net gain	27
4.4.2. Strategic Compensation	27
5. A catalyst for change – Nature Positive offshore wind	28
5.1. Nature Positive	28
5.1.1. A Nature Positive energy transition	29
5.2. Fisheries for the future	30
5.2.1. More food for seabirds	30
5.2.2. Bycatch – preventing seabird deaths in fishing gear	31
5.3. Places for nature to thrive	32
5.3.1. Protection at sea	32
5.3.2. Protection of breeding colonies	35
5.3.3. MPAs and climate change resilience	36
5.4. Sustainable seas – marine planning to secure a just transition	40
5.5. Pioneering a global standard	41
5.5.1. UK leadership	41
5.5.2. Investing in nature	42
6. Conclusion	45
References	46
Contact	48

Acknowledgements

The RSPB would like to thank **Peter Barham MBE** and **Nature Bureau Ltd** for their contributions in preparing this report. We have worked with **RenewableUK** in the development of this report, taking on board their views and advice to refine its key messages, and for which we are very grateful. All conclusions drawn, and views expressed in this report, are the RSPB's own and have been endorsed by the following signatories: BirdLife International, Fauna and Flora International, Greenpeace, Marine Conservation Society, Northern Ireland Marine Task Force, Scottish Environment LINK, Scottish Seabird Centre, Wales Environment Link, Whale and Dolphin Conservation and Wildlife and Countryside Link.



Recommended citation: Royal Society for the Protection of Birds. (2022) *Powering Healthy Seas: Accelerating Nature Positive Offshore Wind. A RSPB commissioned report.*

This publication has been produced with the financial contribution of European Climate Foundation.

The contents of this publication are the sole responsibility of RSPB.

© Text 2022 RSPB. All rights reserved



Credit: Paul Turner (rspb-images.com)

Foreword



Kerry ten Kate
RSPB trustee and Chair of Conservation Committee

When you stand on the coast of our island nation, the seas look vast. The seemingly endless expanses of wild blue appear largely free of human activity. And yet the reality is that our seas, above and below the waves, are crowded with human activity, from energy infrastructure to fishing. Nature is increasingly struggling for space and survival.

We are at a crossroads for nature and for the climate. To achieve net zero and national energy security, we need rapid decarbonisation, leaning heavily on renewable technology and particularly on offshore wind. Unprecedented expansion of offshore wind capacity is needed to reach the target of 50GW by 2030 set in the British Energy Security Strategy. The speed necessary to realise this ambition is startling: the construction of one 12MW wind turbine (roughly three times the height of Big Ben) will likely be needed every weekday for the remainder of this decade¹. This will set the precedent for how we approach and manage our seas. A just transition to net zero can and must go hand in hand with the recovery of our marine environment and thus be Nature Positive.

This report, *Powering Healthy Seas: Accelerating Nature Positive Offshore Wind*, is a collaborative effort between industry and conservation groups. It spells out what is needed to make the shift to Nature Positive offshore wind, integrating marine recovery and resilience for our seabirds into energy development.

We are already well into the 2020s: the decade the UN has declared for ecosystem restoration to heal our planet². For the UK to be a world leader in offshore wind, policy makers and operators must recognise and respond to the dual nature and climate emergency. They must actively embrace Nature Positive offshore wind as the response, and deliver it in partnership, taking a joined-up approach to planning and delivery.

We cannot continue to operate in silos and we cannot address the challenges of offshore wind expansion project by project. The joint efforts of environmental NGOs and industry representatives in preparing this report demonstrate the desire to work together to drive strategic change and are a solid foundation for further collaboration.

Bringing to life the report's recommendations offers a brighter, entirely achievable, future for nature, climate and for people. Big decisions need to be made, decisions of a generation that will shape the future of UK waters. The result must be a Nature Positive renewables revolution for thriving seas.



Executive summary



Credit: Ben Andrew (rspb-images.com)

Thriving seas, vibrant with wildlife, must define a healthy net zero planet. As action to decarbonise accelerates, the UK's seas exemplify the challenges of reconciling the nature and climate emergency. World leading ocean recovery and secure renewable energy is within our grasp if we take transformative Nature Positive action, now.

Too often a forgotten wilderness, our seas are in fact a powerhouse for economic activity. UK seas supply energy and food all over the world, through oil and gas, aggregates and fisheries, alongside internationally important transport routes. The North Sea in particular has been a hub for much of this activity, but this basin, once plentiful in wildlife and extensive reef habitats, is now a shadow of its former self.

Between 1986 and 2019, the number of the UK's globally important breeding seabirds fell by almost a quarter, and by nearly half in Scotland, their UK stronghold. As top predators, seabirds are good indicators of ocean health. Their sensitivity and vulnerability to changes in their environment, means seabirds can inform the actions needed to protect and restore UK seas. Ongoing seabird declines and the failure of UK seas to achieve Good Environmental Status (GES) highlight that we are currently a long way from thriving seas, vibrant with wildlife.

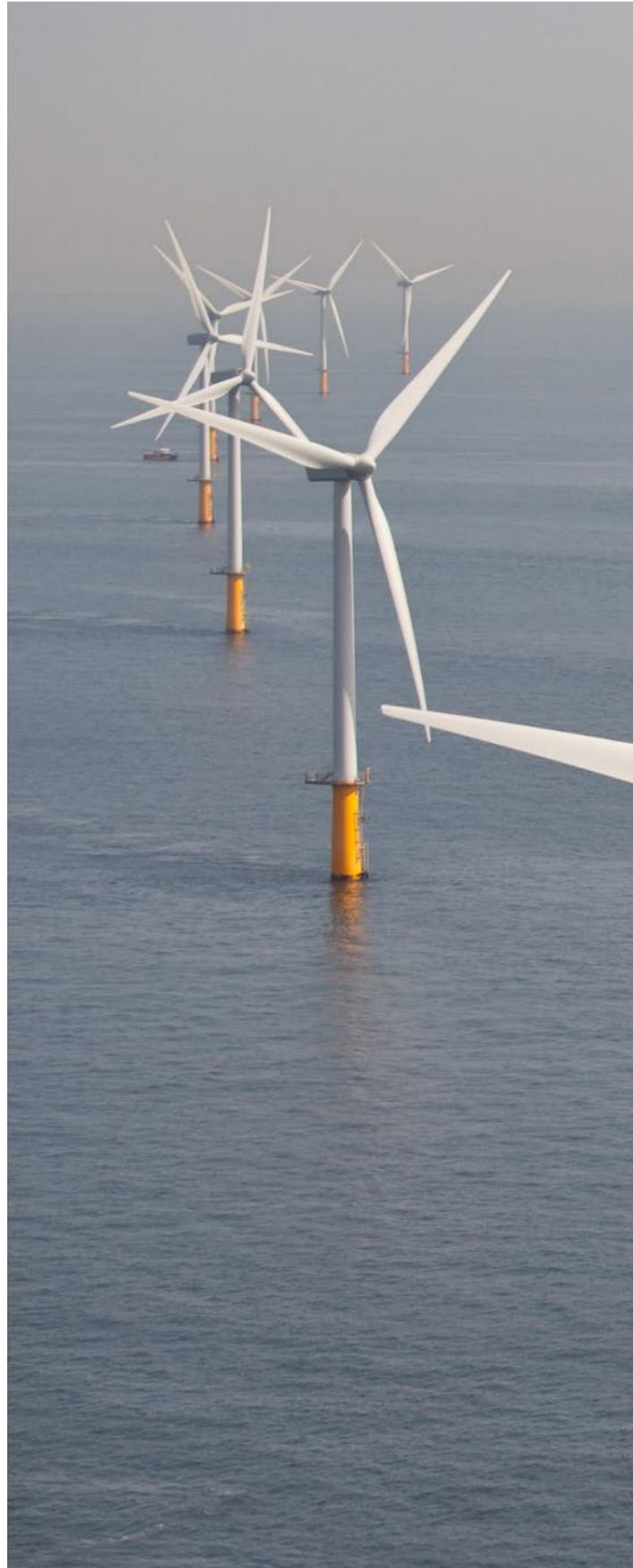
As an effective, low-cost renewable technology, offshore wind at scale is vital and the only viable option to enable the shift away from fossil fuels required to meet net zero and secure affordable and reliable domestic energy supplies. The UK is a world leader in offshore wind development and has rightly set ambitious targets to expand this technology. It is vital this infrastructure is developed in ways that allow nature to recover and thrive, especially as healthy nature is also our blue carbon ally in the fight on climate change. There is also an opportunity for the essential transition to renewable energy to catalyse wider ocean recovery.

Through a collaboration of environmental NGOs and the offshore wind sector, we set out an ambitious but pragmatic approach placing offshore wind within a wider context of marine management that is good for nature, climate and people. Crucially it recognises offshore wind as a key driver to achieve positive change.

Many of the challenges are rooted in planning systems that have failed to keep pace with the evolution and scale of offshore wind as a technology, or indeed the rapid decline of seabird populations. There is therefore much to gain across the sector by updating the planning and policy frameworks for England, including as part of the British Energy Security Strategy and through the development of the Energy Security Bill, while Westminster works with the UK devolved governments to ensure a complementary approach.

The following recommendations are key to accelerating offshore wind deployment whilst taking account of nature, none of which are currently in place across the UK at the scale or level of ambition required:

- ✦ A robust and strategic ecological evidence base informing where new offshore windfarms go providing more certainty that developments are sited to cause as little harm as possible and enabling effective mitigation.
- ✦ Country level marine plans for offshore renewables (as in Scotland) to coordinate delivery of 2030 offshore wind targets and assess and manage ecological impacts at scale from the outset, including the implications of displacing other activities, such as fishing and associated coastal infrastructure.
- ✦ Impact assessments that fully identify the cumulative impacts of multiple offshore developments.
- ✦ Innovative industry standards and policy that prevent harm and better protect and restore nature.
- ✦ Robust adaptive management that enables development to proceed, with safeguards in place to monitor new mitigation measures and adapt as needed.
- ✦ Clear understanding and application of strategic compensation, that addresses the ecological needs of impacted species, habitats and protects site integrity.
- ✦ Development of an equitable marine 'net gain' system, enabling both strategic and site-based interventions to help drive the recovery of marine biodiversity.



To move beyond nature protection to nature recovery, much more work is needed. The Nature Positive movement reflects a global ambition to ensure that this decade is the turning point, placing nature firmly on the path to recovery. Nature Positive will require an economic transformation, moving beyond business-as-usual, to ensure that measurable actions for nature are embedded into all decision-making processes.

For offshore wind we have identified the following definition:

Nature Positive offshore wind is industry and government-led action to restore resilient seas, going above and beyond halting nature loss as part of the UK's renewable energy transition.

In a nutshell, the scale of offshore wind deployment and our already extremely busy seas, means we cannot restore nature at sea by improving the approach to offshore wind development in isolation. Instead, the sector, facilitated by true government leadership, must also play its role in championing the wider suite of changes at sea to tackle the dual nature and climate emergency.

Decisions about which pressures and activities cease, continue and expand will be necessary as we undertake a just transition to a Nature Positive economy that works well for people, nature and the climate. Action must go beyond the offshore wind sector and the planning status quo.

Using seabirds as an example, a Nature Positive approach must include:

- ✦ Strategic, holistic and truly spatial marine planning, led by government, providing clarity for marine users across the breadth of UK seas and facilitating development alongside the achievement of GES.
- ✦ Enhancing forage fish availability notably through the closure of industrial sandeel fisheries in the UK Exclusive Economic Zone.
- ✦ Effective and ambitious monitoring and mitigation measures in fisheries to minimise and eliminate bycatch.
- ✦ The completion, and effective management, of our Marine Protected Area network to safeguard areas important for foraging and prey species.
- ✦ Seabird island biosecurity programmes that keep islands free of invasive mammalian predators.

A Nature Positive approach to our seas, and the expansion of offshore wind squarely in that context, is the standard that governments must deliver to be true world leaders in this technology. Marine wildlife, such as our seabirds, do not recognise national borders, we need to work collaboratively as part of a wider community of nations and stakeholders across our seas. We must change today to power tomorrow. We must harness the ambition of Nature Positive to catalyse ocean recovery and a truly transformative energy transition, hand in hand.



Credit: Ben Andrew (rspb-images.com)

01 Introduction



This collaborative report between non-governmental organisations (NGOs), with input from offshore wind industry representatives, comes at a pivotal time for nature and net zero. In it, we set out the urgent steps needed to secure a just offshore energy transition, halt nature's decline and restore thriving seas. Conflict in Ukraine has increased the urgency with which we must transition to secure and clean new energy supplies. The time to establish a clear route to market and accelerate offshore wind has never been more urgent.

And yet, as top predators, seabirds are clear indicators of the health of our marine environment. Ongoing declines observed in the number of breeding seabirds and the failure to achieve Good Environmental Status are a clear warning that our seas are struggling.

Ambitious targets for the UK's offshore wind expansion are set to see rapid acceleration of development in UK seas, particularly in the North Sea where significant offshore wind development has already taken place. The North Sea is not in isolation, and we are seeing similar acceleration in the Celtic and Irish seas. There is uncertainty in the current approach to marine use - for marine users, offshore wind developers, fishers and for the future of our seabirds.

In this report we utilise the North Sea as a case study for lessons learnt, providing the principles needed to step change towards Nature Positive offshore wind. The right changes now will see a richer tomorrow for sustainable, healthy, and thriving seas.



02 Nature and climate

2.1 Nature and climate – the indivisible emergency

The Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC)³ make it clear that the nature and climate emergency is indivisible. If we are to halt global temperature warming to 1.5°C by the end of this century global emissions must rapidly reduce by the end of the decade to reach net zero by 2050. Rapid decarbonisation is therefore vital but so is the protection and restoration of ecosystems on land and at sea.

However, unprecedented levels of human activity⁴ at sea hinders the role that our seas can and must play in mitigating the impacts of climate change, a role highlighted in the Glasgow Climate Pact, agreed at the COP26 of the UN Framework Convention on Climate Change in 2021⁵. Healthy marine ecosystems capture and lock carbon, acting as nature-based solutions⁶ to the climate challenge. On our coasts, habitats like saltmarsh provide essential ecosystem services including flood and erosion control, thereby helping to protect infrastructure and communities by reducing the risk of coastal flooding and erosion⁷. Overall, it is estimated that in the UK marine and coastal ecosystems store more carbon than terrestrial habitats⁸. Seas provide half the oxygen we breathe, food, support livelihoods and generate energy (wind, wave and tidal).



A continued loss of nature threatens not only over half the global GDP, but more importantly human lives and wellbeing, with the poorest and most vulnerable hit first and hardest⁹. To secure our future, we must secure the health of our seas.

2.2. Nature in crisis – struggling seabirds

The UK is of outstanding international importance for its breeding seabirds and therefore has a global responsibility for these species. Every summer, our shores come alive with nearly 8 million breeding seabirds from 25 species including 90% of the world's Manx shearwaters, over 50% of its northern gannets and a tenth of its puffins¹⁰.

Our seabirds are, however, in trouble: the UK's breeding seabirds have declined by almost 25% since the 1980s¹¹. In Scotland, the UK's seabird stronghold, this decline is as much as 49%¹² while across the 25 breeding seabird species, 24 of these are amber or red listed in the UK Birds of Conservation Concern list¹³. The poor state of our seas is reflected in the UK's failure to achieve Good Environmental Status (GES) as required by the UK Marine Strategy¹⁴, with seabirds, a key indicator of ocean health not only failing but moving further from the target. Seabirds are long lived, late maturing species and often rear only one brood of chicks a year meaning that losses of adult birds can have significant impacts on their populations. Poor productivity (e.g. linked to lack of food for chicks, poor conditions of adults) limits population recovery. To reverse seabirds declines, we must secure plentiful food supplies, safe places to feed and safe places to nest. Over the past 30 years in the Southern North Sea, sea surface temperatures have increased 0.45°C per decade¹⁵, triggering changes in food webs. This is highly evident in kittiwakes, a species reliant on sandeel¹⁶, where sandeel availability is negatively impacted by a change in plankton assemblages brought about by temperature increases, (figure 1). Coupled with the impact of commercial fishing on sandeels, prey availability has reduced with a consequent 70% loss of kittiwakes in the UK since 1986¹⁷.

Sandeels Under Threat

As the primary prey for many UK breeding seabirds.

They play a crucial role in food webs, ensuring energy flows from the plankton they eat (primary productivity), to top predators, such as commercial fish, marine mammals and seabirds.

Fishing

Overfishing gravely exacerbates the impacts of climate change on sandeel stocks, making it even harder for seabirds to find food and raise their chicks.

Fishing

Overfishing of sandeels from industrial fisheries has reduced their availability in the North Sea. Historically, too many sandeels have been removed, impacting sandeels' ability to reproduce and continue the life cycle.

Offshore Wind

Sandeels spend a lot of their lives burrowed in the seabed and their dispersal is restricted. Marine renewables have the potential to alter the physical and sensory environment upon which sandeels depend, including through the introduction of noise, changes in water flow and habitat loss.

Cabling

Laying the cabling for marine infrastructure, such as offshore wind, can also cause habitat loss and disturbance. The cable electromagnetic fields can also influence sandeels' sensory environment.

Climate Change

Warming sea temperatures influence the mix and seasonality of plankton communities, causing a trophic mismatch. This has consequences for the recruitment, quality and abundance of sandeels.

Climate Change

Reduced quality and abundance of sandeels can cause seabird declines and a lack of suitable food to successfully raise chicks. This is particularly evident in UK seabird colonies along the North Sea coast.

Offshore Wind

Fewer sandeels available for foraging seabirds, such as puffin and kittiwake, could act as an added pressure to threats already associated with the turbines, such as collision risk and displacement.

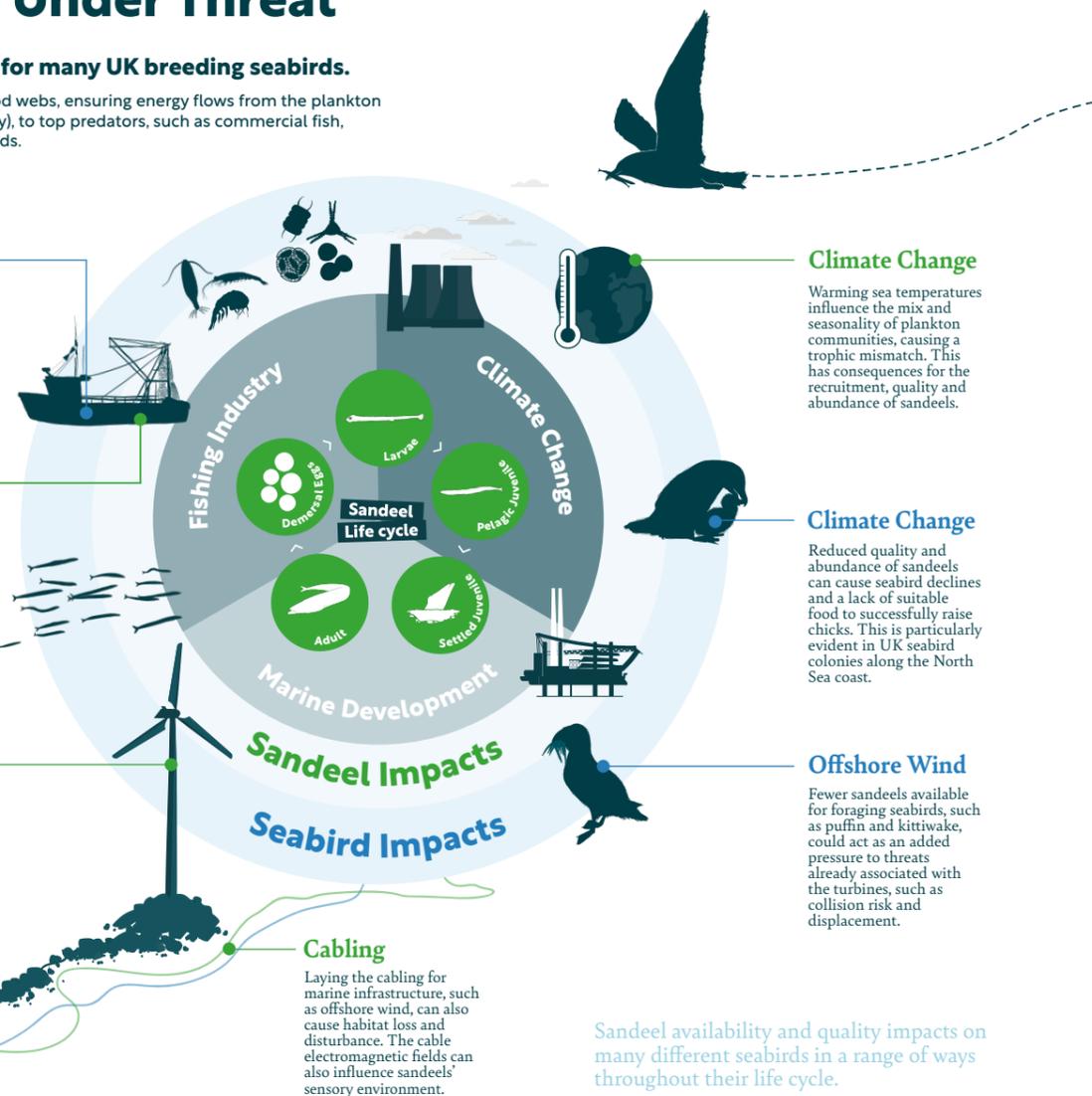


Figure 1. Threats to sandeels (green) and subsequently seabirds (blue) from increasing pressures in our seas including fishing, climate change and marine development.

Seabirds nest on land where they may experience added pressure through predation by mammals. On islands which are naturally free of ground predators, non-native species like rats or cats, introduced by accident or design, can cause catastrophic declines in seabird populations. Bycatch also impacts hundreds of thousands of seabirds each year around the world; here up to 9,100 fulmars and 3,300 guillemots are estimated to be caught in UK fishing gear in our seas¹⁸.

In addition, rising sea levels accelerate coastal squeeze (i.e., the loss of coastal habitats as sea level rises and nature is squeezed between the sea and developed areas), reducing the availability of breeding sites for seabirds like terns.

Similarly, changes in global weather patterns drive more extreme weather events including increased frequency of offshore storms which in succession can cause increased weakness and starvation in seabirds.

In 2022, an unprecedented virulent outbreak of Highly Pathogenic Avian Influenza (HPAI), an infectious disease swept through our seabird colonies. At the time of writing, the full scale of impact is unknown, but it is already clear it will be an additional catastrophe for many species already in decline. This is a reminder of the precarious state of our seabirds and need for urgent action for secure, resilient, thriving populations and healthy seas.

2.3. Offshore wind – a vital technology

Through the British Energy Security Strategy (BESS)¹⁹, the UK Government announced an ambition for 50GW of energy from offshore wind by 2030 (including 5 GW from floating turbines) – a fivefold operational increase within a decade. The Climate Change Committee (CCC) have recommended that 100-140GW must be operational by 2050²⁰. A significant proportion of offshore wind capacity will be required by 2035 in order to phase out fossil fuels and meet the 78% reduction in greenhouse gas emissions target set out in the Sixth Carbon Budget²¹.

The scale of ambition for offshore wind development means there will be continuous construction, maintenance, repowering or decommissioning of offshore wind infrastructure in the North Sea for at least the next three decades to reach net zero by 2050. Engineering at this scale is no easy task, incorporating the supply chain of materials, port space and vessels for transporting the technology out to sea, offshore transmission networks and onshore grid readiness to bring the power generated back to the land. Many challenges are rooted in a disjointed planning approach which lacks spatial specificity, a long-term roadmap and clear hierarchies. This is exacerbated by a siloed approach to the use of our sea space rather than integrated action for nature and climate.

Historically, the siting of offshore windfarms in the UK has primarily been determined by The Crown Estate, who identify and lease areas of the seabed to developers who bid for exclusivity rights. The environmental impacts of each project on protected wildlife and habitats have generally only been considered in detail at the point of application for consent. The lack of a frontloaded, strategic approach results in developers being locked into sites with unresolved ecological impacts and an understandable desire to maximise returns from their leases.

Offshore windfarms can impact seabirds in a variety of ways during construction and operation (figure 2):

- ✦ Risk of collision with the turbine blades (e.g. kittiwake and northern gannet – birds which fly at turbine height).
- ✦ Disturbance (e.g. from construction, maintenance, boat activity) with resulting extra energy expenditure (e.g. red-throated divers which are sensitive to human activity)²².
- ✦ Loss of access to preferred foraging areas (displacement).
- ✦ Risk of blocking important feeding and migration flyways (barrier effect).



The impacts from offshore wind individually or cumulatively, alongside other human activities and marine industries, contribute to increased seabird mortality and reduced breeding success in addition to impact from underwater noise on marine species such as cetaceans, and damage to ecosystems, through habitat modification. Piecemeal approaches to cabling (i.e., point to point connections and individual landfall for each windfarm rather than strategic offshore transmission networks) not only increase social impacts on coastal communities²³, but they undermine the ability of marine and coastal habitats, such as seagrass and saltmarsh to lock up carbon and operate as nature-based solutions to climate change.

The expansion of offshore wind is vital to tackle the climate crisis but must be done in ways that address its environmental impact and helps restore nature. Cumulative impacts from offshore wind have now been recognised by the UK Government presenting an opportunity for new approaches; with the help of robust and strategic governmental policies, this win-win is possible.

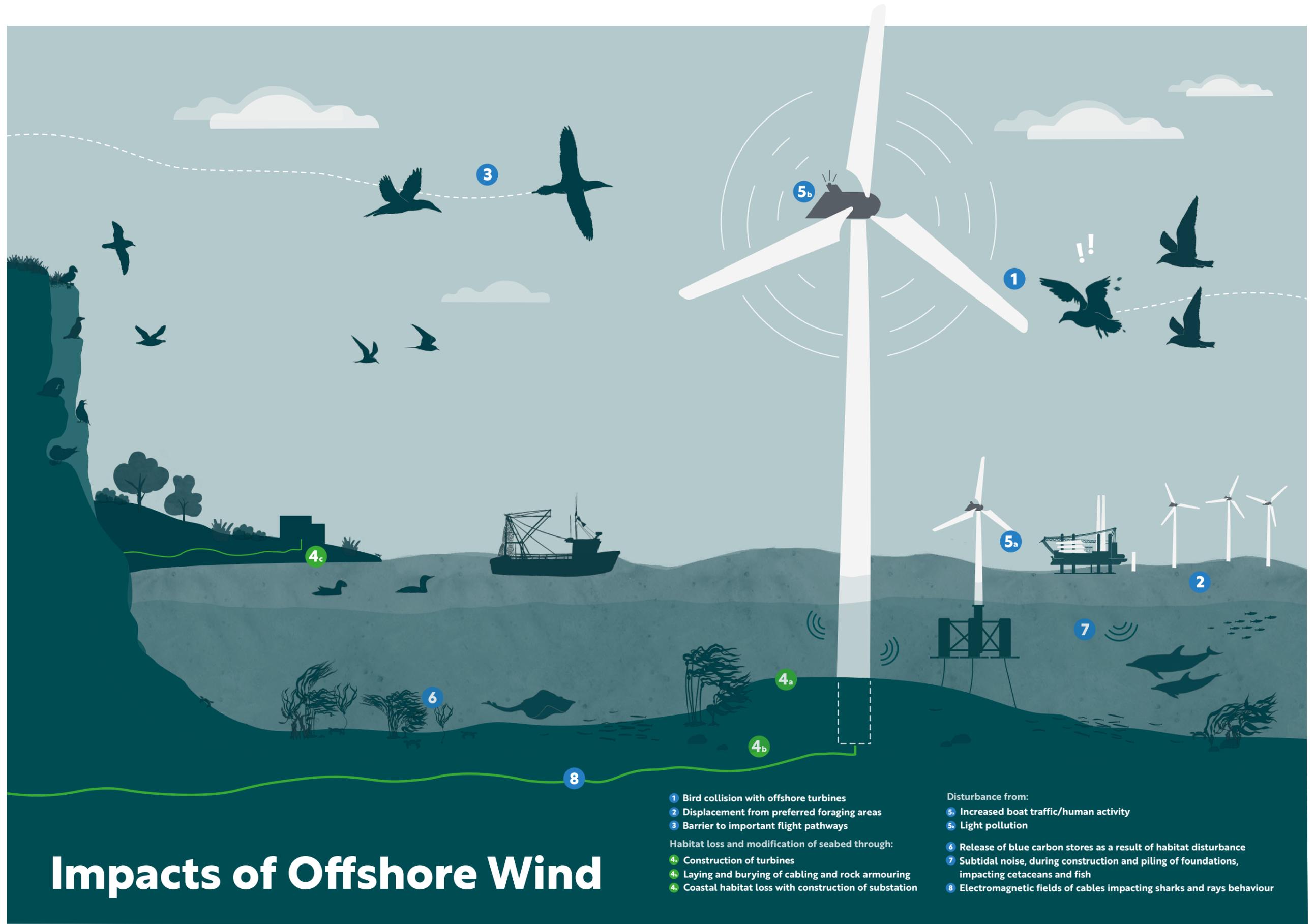


Figure 2. Potential direct and indirect impacts on seabirds and the associated marine ecosystem from the development of fixed based and floating wind turbines.



03 Busy Seas

3.1 Busy seas under pressure

The North Sea is one of the busiest maritime areas in the world. Human activities are often localised around areas such as The Dogger Bank or Firth of Forth. These same areas within the UK Exclusive Economic Zone (EEZ) are essential for UK seabirds. International sandeel fisheries takes place exclusively in the North Sea expanse of the UK EEZ, with stocks declining in several areas as a result, alongside a significant change in their quality and distribution²⁴ (see section 2.2). There are also significant impacts from certain fishing methods: an OSPAR assessment of benthic habitat impact from bottom towed gear on the Greater North Sea and Celtic Seas showed 86% of the assessed areas as physically disturbed and 58% assessed as highly disturbed²⁵.

It is in these already busy seas that we need to accelerate offshore wind at an unprecedented rate. There are multiple layers to human activity in the North Sea, utilising this three-dimensional environment (see figure 5) from oil and gas rigs, to shipping lanes and fisheries, and to cabling and pipelines on the seabed. In this busy sea space, the current lack in marine spatial planning is not leaving enough room for nature to thrive.

3.2. Wider UK seas

To collectively achieve the UK wide target by 2030, all four countries need to contribute to offshore renewables expansion throughout UK waters. The technology is already spreading further across the North Sea: Scotland and Northern Ireland have offshore wind 2030 capacity targets of 11GW²⁶ and 1GW²⁷ respectively with Wales aspiring to develop 4GW of floating offshore wind by 2035 in the Celtic Seas²⁸, alongside other marine renewable technologies (figure 3).

In February 2022, Northern Ireland announced their first two consent proposals for offshore wind farms in the North Channel, in the northern Irish Sea (construction beginning 2027/28). The Crown Estate have also proposed delivering an initial 4GW of offshore wind²⁹ as part of the next leasing round in the Celtic Seas - a major uplift in offshore wind deployment off the coast of Wales, with ambition to continue expanding (figure 4).

3.3. EU context

At a European level, the EU Strategy on Offshore Renewable Energy proposes to increase offshore wind energy generation capacity from 12 GW to at least 60 GW by 2030 and to 300 GW by 2050³⁰. The North Sea is expected to accommodate a substantial proportion of this capacity. Germany, Denmark, Belgium and Netherlands have announced their ambition for combined energy targets through their EEZ's in the North Sea, becoming a Green Energy Hub, facilitated by the creation of artificial islands³¹. This staggering uplift in capacity has been reinforced through the European Commission's plan, as of May 2022, to REPowerEU – shifting away from dependency on Russian oil exports and contributing to tackling the climate emergency. This rapid acceleration across the North Sea basin supports the need for a strategic and collaborative approach with our European neighbours. Nature does not fit neatly within national boundaries, the North Sea is a shared marine ecosystem that we have a collective responsibility to protect.



Figure 3. Wider UK seas map displaying UK Exclusive Economic Zone, highlighting key seas for marine development.



- - Early Planning/Consent
- - Fully Commissioned

Figure 4. Planned (light green) and fully commissioned (dark green) offshore wind farms in the Irish and Celtic seas, source: <https://map.4coffshore.com/offshorewind/>.



Credit: Michael Harvey (rspb-images.com)



Credit: James Duncan (rspb-images.com)

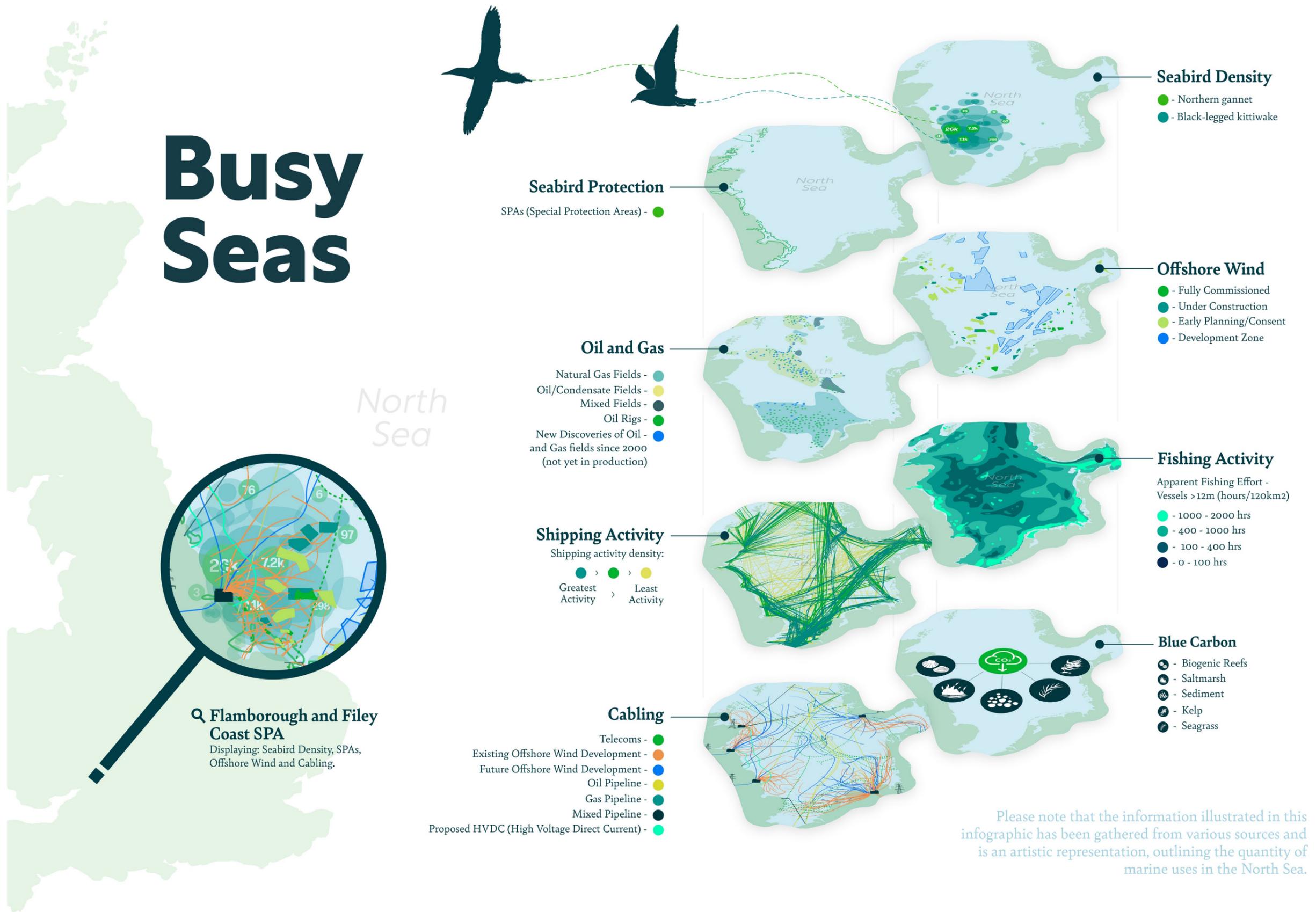


Figure 5. Demonstration of activity in the North Sea including; Northern gannet and black-legged kittiwake density, Special Protection Areas along the UK coastline, offshore wind farms (fully commissioned, under commission, early planning/consent, development zone) (data from: <https://map.4coffshore.com/offshorewind/>), oil and gas fields and operational rigs (data from: www.emodnet-humanactivities.eu), averaged apparent fishing effort for >12m vessels from January 2019 – January 2022 (data from: www.globalfishingwatch.org), seabed activity from cabling and pipelines (interpretation of data from: <https://map.4coffshore.com/offshorewind/>, Caithness Moray HVDC and The Eastern Link transmission reinforcement), and representation of blue carbon organic and inorganic stores.

04 Accelerating offshore wind and minimising impacts on nature

4.1. Protecting nature

Nature is often perceived as a barrier to the acceleration of offshore wind, however many of the challenges are rooted in planning systems developed when this was an emerging technology. We cannot afford planning systems that pitch offshore wind against nature; instead, the UK Government, working cooperatively with the devolved country governments in the UK, must use the opportunity presented by the British Energy Security Strategy and Energy Security Bill to streamline and accelerate deployment and protect biodiversity.

We need to see:

- ✦ A robust and strategic evidence base informing the siting of new offshore windfarms providing all parties a degree of certainty that developments are sited to cause as little harm as possible and enabling effective mitigation.
- ✦ Country level marine plans for offshore renewables (as in Scotland) to coordinate delivery of 2030 offshore wind targets and assess and manage ecological impacts at scale from the outset, including the implications of displacing other activities, such as fishing and associated coastal infrastructure.
- ✦ Impact assessments that fully identify the cumulative impacts of multiple offshore developments.
- ✦ Innovative industry standards and policy that prevent harm and better protect and restore nature. Robust adaptive management that enables development to proceed, with safeguards in place to monitor new mitigation measures and adapt as needed.
- ✦ Clear understanding, and application, of strategic compensation, that addresses the ecological needs of impacted species, habitats and protects site integrity.
- ✦ Development of an equitable marine net gain system, enabling both strategic and site-based interventions to help drive the recovery of marine biodiversity.

4.1.1. Evidence base

The nature of the marine environment and long-term lack of investment in data collection means our evidence base across all UK waters and beyond (e.g. location, distribution and condition of species and habitats) is insufficient. Whilst we appreciate the challenges, this must change to make it possible to identify the least sensitive areas for development, a step change that would increase certainty for industry and marine planners and be transformative for nature.

As the collection and analysis of data takes time, it is crucial that research and monitoring starts immediately, informed by forums such as the Offshore Wind Environmental Evidence Register (OWEER) and Defra's Offshore Wind Enabling Actions Programme (OWEAP). For seabirds, we need to expand our understanding of demographics, population size, natural mortality, impacts on prey species, as well as the predicted and already felt impact of climate change to better understand how different pressures affect populations. Alongside establishing a robust baseline with which to monitor declines and identify causes we need a better understanding of how seabirds – and other migratory birds – are affected by offshore wind farms. This is vital to inform environmental impact assessments at both the project and plan level and crucially what measures are successful to avoid and reduce harm.



4.1.2. Strategic research and monitoring

Industry plan-level baseline monitoring surveys to enable accelerated deployment

To increase certainty and streamline the offshore and onshore consenting process, industry should collaborate to deliver standardised, plan-level surveys to inform impact assessment – which could be facilitated by country level marine plans. To lever the change and tackle commercial and competitive sensitivities, government intervention and the establishment of a new enforceable framework is required.

The Offshore Wind Evidence and Change Programme:

In December 2020, The Crown Estate, Defra and BEIS formally launched the Offshore Wind Evidence and Change Programme (OWEC). OWEC is already helping to strategically address ecological evidence gaps in order to enable sustainable offshore wind development:

- ✦ **Tracking of Seabirds at Sea** is addressing uncertainty in the assessment of cumulative impacts on internationally important seabird breeding colonies, such as movement of individuals between colonies, year-round connectivity between Special Protection Areas and offshore wind farms and survival rates. This RSPB-led work is a pioneering project aiming to use innovative technology to collect ground-breaking data on currently unmeasurable parameters.
- ✦ **POSEIDON** (Planning Offshore Wind Strategic Environmental Impact DecisiONs) aims to improve our knowledge of environmental risks across UK waters to aid future planning and policy frameworks. This Natural England led project seeks to produce a strategic environmental baseline for the England and Wales Round 4 lease areas. It will also help update spatial models for key receptors and aid the development of a risks and opportunities map which can be complemented by developer collected data.

4.1.3. Cumulative and in-combination impacts

Plan level consideration of cumulative and in-combination³² impacts is vital to understand the implications of offshore wind development – throughout the full lifecycle – at an ecosystem level and interactions with other pressures from the marine industry. Currently individual and cumulative impacts are considered at the plan level through Strategic Environmental Assessment (SEA) and plan level assessment under the Habitat Regulations. Cumulative and in combination effects should only be taken into account once there is a formal commitment to the development either by way of a formal allocation through a strategic development plan or once a consent has been granted. It is therefore not possible to truly assess cumulative impact from the HRAs associated with leasing rounds as they are possible lease sites with no commitment to delivery.

Although SEA and plan level assessments are highly useful in requiring the environment to be considered as plans are first developed, they have broad perspective and often lack sufficient detail across many options. Typically, this results in decisions to avoid and mitigate impacts being delegated to the project level by which point those options can be narrowed. There is slowly starting to be a shift - for example, the SEA and plan level HRA for the Sectoral Marine Plan for Offshore Wind Energy in Scotland identified a requirement for plan level mitigation.

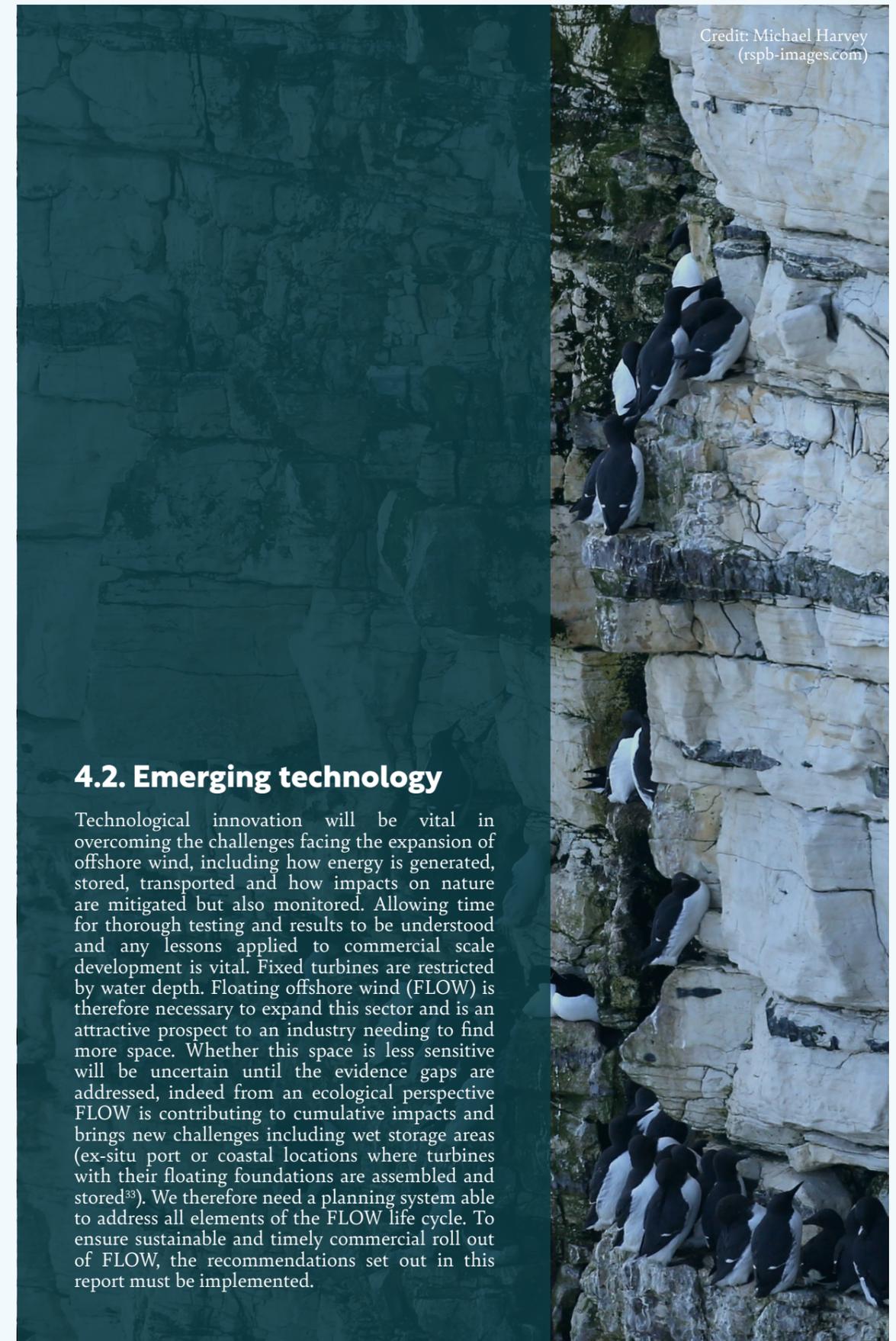
Greater effort however is needed from governments to make more of the information that we do have and enable strategic approaches to avoiding and addressing impacts on nature.

- ✦ **Scope** - Plan level assessments must consider cumulative impacts from previous and future development, including all offshore windfarms in the 2030 pipeline. Assessments must consider year-round impacts, over multiple years and at multiple population scales.
- ✦ **Scale** - The scale at which impacts are assessed and addressed must reflect the ecological needs of the impacted sites and their species and habitats.
- ✦ **Standardisation** - The consistency of impact assessments is key to improving the robustness of outcomes and can only be achieved through government mandated standards. This should include timescales, evidence gathered, analysis, best available techniques, and presentation of data.



Credit: Andrew Bielinski (rsps-images.com)

³² Please note - The Habitat Regulations (relating to Habitat Regulation Assessments, HRA), Environmental Impact Assessment Regulations and Strategic Environmental Assessment Regulations provide legal definitions for cumulative and in-combination impacts. Here, for simplicity, we refer to cumulative impacts to include both.



Credit: Michael Harvey (rsps-images.com)

4.2. Emerging technology

Technological innovation will be vital in overcoming the challenges facing the expansion of offshore wind, including how energy is generated, stored, transported and how impacts on nature are mitigated but also monitored. Allowing time for thorough testing and results to be understood and any lessons applied to commercial scale development is vital. Fixed turbines are restricted by water depth. Floating offshore wind (FLOW) is therefore necessary to expand this sector and is an attractive prospect to an industry needing to find more space. Whether this space is less sensitive will be uncertain until the evidence gaps are addressed, indeed from an ecological perspective FLOW is contributing to cumulative impacts and brings new challenges including wet storage areas (ex-situ port or coastal locations where turbines with their floating foundations are assembled and stored³³). We therefore need a planning system able to address all elements of the FLOW life cycle. To ensure sustainable and timely commercial roll out of FLOW, the recommendations set out in this report must be implemented.

4.3. The mitigation hierarchy

The mitigation hierarchy establishes clear principles for addressing impacts from development, with a focus on avoiding harm in the first instance. Should avoiding adverse effects altogether (especially those on the integrity of protected sites) not be possible, then measures to mitigate or compensate for those impacts must be applied.

- ✦ **Avoidance - Seek options that avoid harm to ecological features (e.g. by locating at an alternative site or using an alternative layout or design of the project).**
- ✦ **Mitigation - Minimise potential negative effects (e.g. through design by raising of turbine blade height).**
- ✦ **Compensation - Where there are residual negative ecological effects despite avoidance and mitigation, as a last resort appropriate compensatory measures must be provided. Compensation is by way of a derogation (i.e. exception only) and only once further tests have been complied with³⁴.**

Furthermore, there is the potential for additional measures to enhance and provide net benefits for biodiversity over and above requirements to avoid, mitigate or compensate.

4.3.1. Marine planning

In order to avoid and minimise ecological harm from offshore wind expansion, deployment must be informed by strategic government-led, and holistic marine spatial planning. This must include ensuring a frontloaded approach to assessing the ecological impacts of all aspects of development, associated infrastructure and other activities, for example using Strategic Environment Assessment (SEA) to identify which areas of the seabed are appropriate for sustainable development and maximising colocation.

Understanding how offshore renewables and other activities can and cannot share marine space, i.e., colocation, is vital. Clarity and certainty are necessary for all marine stakeholders and decision makers. For example, the types of fishing, including what gear, are able to operate within offshore windfarms will influence the distribution of both industries and therefore the associated pressure on our seas. However optimising sea space for nature recovery and climate is vital for sustainable fisheries and must be at the forefront of colocation.



Scottish sectoral marine plan for offshore wind energy

Scottish waters hold huge potential for energy generation through fixed and floating wind. In 2020, the Scottish Sectoral Marine Plan for Offshore Wind was published representing a significant (and welcome) step forward on the development of effective strategic planning in the UK. This government-led plan identifies areas for new offshore windfarm development and sets out the plan level mitigation required for the 10GW expansion scenario. The process ensures that the widest range of potential impacts of offshore wind development, whether social, economic or environmental, are considered.

An offshore wind plan for England

Over a decade since the Marine and Coastal Access Act 2009 introduced marine spatial planning, England's area level plans still lack the necessary spatial specificity and ambition. In some areas they appear to be neglected entirely with the East England Marine Plan in the Southern North Sea – a key area for offshore wind – awaiting update since 2020. Whilst vital work is underway through Defra's Marine Spatial Prioritisation Programme (MSPP) to update England's plans, it is in its early stages and the British Energy Strategy has not only increased the UK's offshore wind ambition for 2030 but also established a requirement for strategic compensation (section 4.4). Building on the approach taken by the Scottish Government, an offshore wind plan for England would represent an interim solution by:

- ✦ **Enabling a more strategic approach to delivering the 2030 target and the further deployment of offshore wind needed to achieve the Sixth Carbon Budget.**
- ✦ **Transferring leadership of our offshore energy transition to the UK Government better facilitating the reconciliation of impacts and expansion.**
- ✦ **Assessing ecological impacts at the outset to inform the location of sustainable development and increase certainty for developers and investors alike.**
- ✦ **Supporting plan level assessments of cumulative ecological impacts and related mitigation.**
- ✦ **Providing a framework for the delivery of strategic compensation measures.**



A Marine Development Plan for Wales

In Wales, the proposed expansion of offshore wind is coupled with the current Government's commitment to other forms of marine renewable energy projects such as Tidal Stream, Wave and the Tidal Lagoon Challenge. The Welsh National Marine Plan does not determine where development would be best sited or amount of development that could be delivered in Welsh waters sustainably and in a way that allows for the recovery and enhancement of our marine environment and species. Assessment and allocation of sites via a Marine Development Plan would provide greater clarity and a degree of acceptability to schemes at an early stage. Limiting the scope of conflict at the application stage has the potential to accelerate the consenting process while protecting and restoring marine species and habitats. There is therefore still a long way to go before offshore renewables in Wales are delivering for climate and nature.

Marine planning for Northern Ireland

In Northern Ireland, the Energy Strategy – The Path to Net Zero (Jan 2022)³⁵ established the first offshore wind targets for this country's inshore area. However, in 2022, Northern Ireland is yet to have finalised marine spatial planning in place. This must be addressed to provide spatial certainty for the beginnings of offshore wind and built nature in from the outset.



³⁴ Namely the plan or project being needed for imperative reasons of overriding importance and there being no less damaging alternative solutions to meet that need

4.3.2. Adaptive management

It is not always possible to have 100% confidence in the effectiveness of ecological measures, in practice, a level of uncertainty may be deemed acceptable. Adaptive management is a potentially effective tool that will allow development to be brought forward when there is an agreed acceptable level of uncertainty. Such uncertainty could relate to the impacts of emerging technology and/or potential mitigation measures for different species and habitats, which could be tackled as a development and/or an operation proceeds through monitoring, feedback loops and remedial action(s), should – for example – measures to reduce harm prove less effective in practice than had been predicted.

For adaptive management to work with nature and industry, an approach that is both robust and flexible must be established. This must include detailed, long-term, scientifically rigorous pre- and post-consent monitoring and analysis, collating evidence of effectiveness or recognising current evidence gaps along with ecologically effective alternative measures being required should the original measures prove inadequate. It may be possible to trial potential mitigation measures at demonstration sites – a proactive approach that could be driven by industry and governments. Adaptive management could also be integrated into phased approaches, for example with innovative and emerging technologies, supported by advisory groups of cross sector specialists to enable review before unlocking subsequent stages of development, subject to agreed measures of success. Best practice – and unsuccessful measures – should be shared to enable the industry as a whole to progress and to inform the development of mitigation design standards.

4.3.3. Mitigation design standards

BESS introduces a new Offshore Wind Environmental Improvement Package including nature-based design standards to accelerate deployment whilst enhancing the marine environment. This approach – which could be extended across all offshore development – is welcomed. Building mitigation measures into enforceable design standards, for example turbine height requirements to reduce seabird collision risk, not only has the potential to reduce impacts on nature but is an important tool to increase clarity for industry and planners while streamlining the application process. Design standards must be iterative, underpinned and informed by strategic monitoring and drive industry innovation in design, construction and operation.

4.3.4. Project level compensation

Increasingly new offshore wind developments are requiring derogations³⁶ to compensate for potential adverse impacts on Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in order to gain consent. Going forward, compensation delivered at a small scale, project-by-project level is unlikely to adequately address ecological losses and ensure the coherence of the UK national site network.

We therefore need to look beyond project level compensation and establish a joined-up, strategic approach that will achieve the best ecological outcomes for impacted species, habitats and ecosystems. To facilitate this approach, the offshore wind industry, governments, Regulators, SNCBs, NGOs and other relevant stakeholders must work together to deliver a suite of seascape, strategic compensation measures.

4.4. Challenge and opportunity

4.4.1. Marine biodiversity net gain

As set out in section 4.3, developer-led enhancement is not to be conflated with, and underpinned by action to avoid, mitigate and compensate for harm. The Environment Act 2021 introduced a new system of ‘biodiversity gain’ for most new developments in England, including nationally significant infrastructure, laying the groundwork for the establishment of a formalised system alongside the expansion of offshore wind. This is a welcome move which should be explored in the other countries in the UK. Once established, a robust system of marine net gain which allows developers to implement or fund biodiversity enhancements would make an important contribution to ocean recovery. A marine net gain system could be supported by the BESS established Marine Recovery Fund, and will need to be mandatory across all developments to be truly beneficial to biodiversity.

4.4.2. Strategic Compensation

Industry (individually and in collaboration through the Offshore Wind Industry Council’s (OWIC) Developer Derogation Subgroup and the OWIC Pathways to Growth (P2G) workstream) and government bodies such as Natural England, Defra, NatureScot and Marine Scotland have been exploring the concept of strategic compensation. The UK Government, working cooperatively with the other UK administrations, has committed to strategic compensation through the BESS as part of the Offshore Wind Environmental Improvement Package.

Project-level compensation will still have a role to play. But the focus of managing impacts which cannot be avoided or mitigated should shift to a strategic, wide spatial scale approach for compensation. Natural England’s approach to offshore wind states:

“Designing a strategic system of compensatory measures allows the early stages of development planning to make compensatory requirements clear at plan-level. Compensatory measures must be ecologically effective, and this is more likely if also delivered at a wider strategic scale than the individual development, as bigger, better measures can be implemented.”

We do not yet know what mechanisms or ecological measures strategic compensation will involve. Working strategically and co-operatively clearly presents an opportunity to implement measures at greater geographical scales and across sectors and administrative boundaries. This approach will be essential to delivering meaningful measures for seabirds as will expanding the reach of compensatory measures that benefit nature but are outside the gift of individual offshore wind developers.

It will be some time before we have all the answers. Crucially we must ensure that governments and stakeholders across the UK work together purposefully to develop a shared approach to strategic compensation with the right mix of innovation, monitoring and robust adaptive management to secure real wins for nature at scale.



Credit: Aidan McCormick (rspb-images.com)

³⁶. Derogations provisions as set out in Article 6(4) of the Habitats Directive, whereby a Habitats Regulations Assessment Appropriate Assessment conclusion for a plan or project cannot rule out an adverse effect on the integrity of the UK National Sites Network / Natura 2000 site, or that there is uncertainty, consent can only be granted if there are no alternative solutions, and there are imperative overriding public interest (IROPI) and compensatory measures have been secured.

05A catalyst for change - Nature Positive offshore wind

5.1. Nature Positive

Nature Positive is a call to action urging governments to not only halt the loss of biodiversity but ensure recovery. The concept was established by a coalition of international conservation organisations, including BirdLife International, to create a Global Goal for Nature which – in parallel to the UN Climate Convention’s net zero emissions goal – would commit governments to be Nature Positive by 2030 (figure 6).



This includes the need to:

- ✦ **Ensure this decade is the turning point where we recognize the value of nature, placing it on the path to recovery and transform our world to one where people, economies and nature thrive.**
- ✦ **Halt and reverse nature loss, to increase the health, abundance, diversity and resilience of species, populations and ecosystems so that by 2030 nature is visibly and measurably on the path of recovery.**
- ✦ **By 2050 recover nature so that thriving ecosystems and nature-based solutions continue to support future generations, the diversity of life and play a critical role in halting runaway climate change³⁷.**

The nature and climate emergencies are interlinked. Harnessing the ambition of Nature Positive and embedding it within our response to climate change across all sectors on land and at sea, is not only a positive step, but also a necessary one without which we will fail to halt the loss of biodiversity and achieve the associated benefits for climate.

A Nature Positive UK by 2030

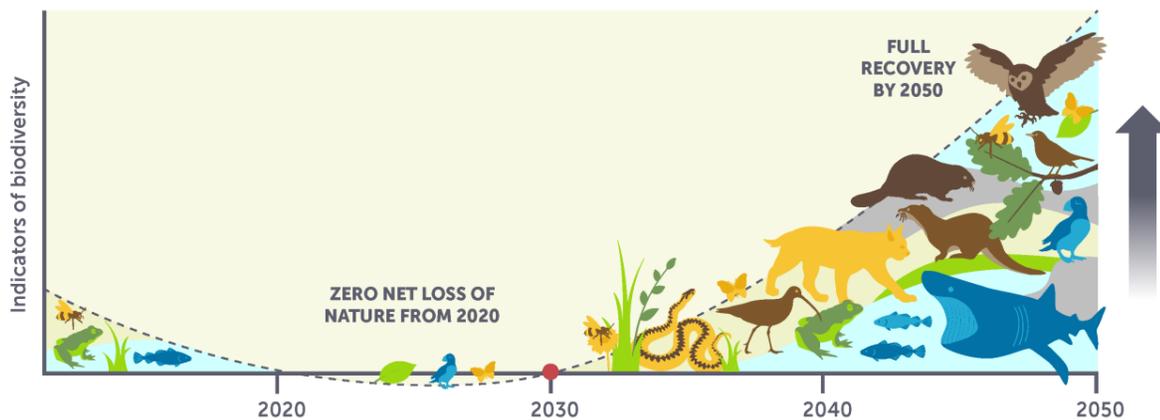


Figure 6. A Nature Positive UK by 2030, adapted from the Global Goal for Nature and representing gain from 2020 baselines.

5.1.1. A Nature Positive energy transition

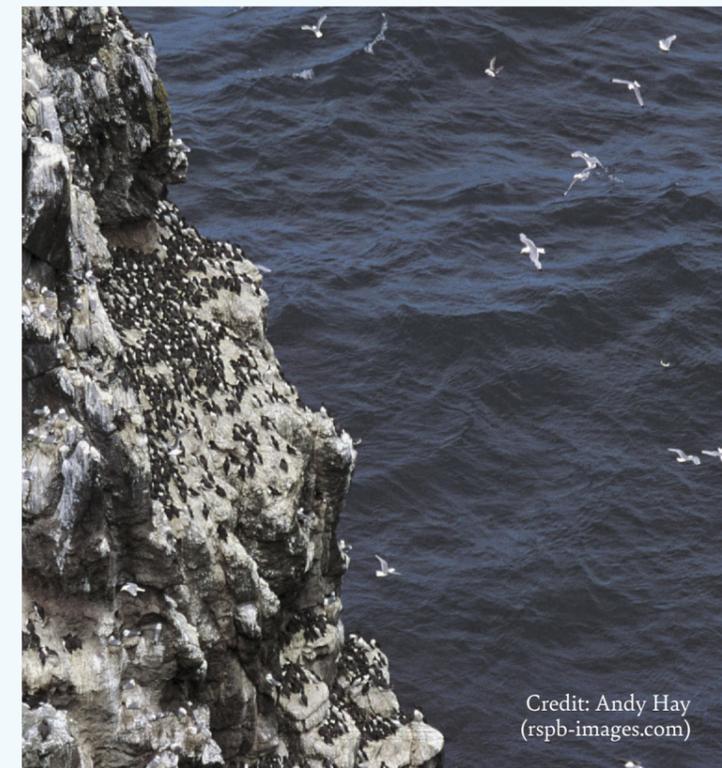
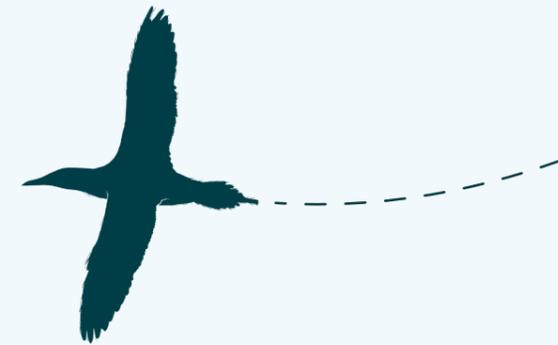
A Nature Positive approach can support offshore wind to act as a catalyst for positive change across the marine environment. A Nature Positive net zero must be the standard we aspire to.

Whilst there is much industry can do to contribute to Nature Positive, Government leadership and facilitation is required to enable tangible actions. These actions need to go above and beyond net gain enhancements to restore our seas and achieve GES by reducing and removing key pressures and addressing the drivers of biodiversity loss. Government and industry actions must be ambitious, measurable and timebound. An ecosystem-based approach is fundamental to success; we need measures that recover populations, address the modifications of habitats and disruption of food webs, tackle invasive species, protect blue carbon and ensure that Marine Protected Areas (MPAs) are effectively protected.

For seabirds this includes the instigation of UK-wide, ambitious, and well-resourced Seabird Conservation Strategies, bringing together and addressing the full range of challenges seabirds face. The scale and pace of offshore wind acceleration is a key opportunity to drive strategic change for seabirds, covering:

- 1 Strategic, holistic and truly spatial marine planning, led by government, providing clarity for marine users across the breadth of UK seas and facilitating development alongside the achievement of GES.**
- 2 Enhancing forage fish availability notably through the closure of industrial sandeel fisheries in the UK Exclusive Economic Zone.**
- 3 Effective and ambitious monitoring and mitigation measures in fisheries to minimise and eliminate bycatch.**
- 4 The completion, and effective management, of our Marine Protected Area network to safeguard areas important for foraging and prey species.**
- 5 Seabird island biosecurity programmes that keep islands free of invasive mammalian predators.**

“Nature Positive offshore wind is industry and government-led action to restore resilient seas, going above and beyond halting nature loss as part of the UK’s renewable energy transition.”



Credit: Andy Hay (rspb-images.com)



Credit: Aidan McCormick (rspb-images.com)

5.2. Fisheries for the future

The introduction of the UK Fisheries Act (2020) offers an opportunity for the UK Government and devolved administrations to take new ecosystem-based approaches. Addressing the key causes of decline, such as lack of prey for seabirds and bycatch, holistically with other wind deployment will be crucial in achieving a just Nature Positive energy transition.

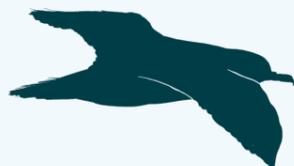
5.2.1. More food for seabirds

Certain fish species, often called ‘forage fish’, are vital for seabird survival. As such, how we protect, manage and impact forage fish is key in turning the tide for seabirds. Building resilience and helping seabirds survive other threats needs to be a core component of a sustainable energy transition.

All UK administrations have committed to protect key forage fish and specifically recognised³⁸ that ‘urgent actions are needed to protect sandeel and Norway pout stocks and the wider marine ecosystem’. Some welcome steps have been taken to manage the North Sea sandeel fishery in UK waters including the Scottish Government’s commitment not to support industrial sandeel fishing in Scottish waters³⁹, the sandeel box closure on the east coast of the UK, the management of the UK part of the Dogger Bank SAC⁴⁰, and the call for evidence on sandeel management⁴¹. However, greater and more ambitious action is needed to fully address serious flaws in the management of forage fisheries to enable the recovery of fish stocks and wider nature.

Key measures required include:

- ✦ **A four-nation agreement to close UK Seas (the UK EEZ) to industrial sandeel fisheries, building on the closure in Scottish waters to 20,000km² of sea to sandeel fishing in 2000 in response to declining seabird numbers.**
- ✦ **Improving the scientific advice for annual catch limits for seabird prey species – to account for i) predator needs and ii) the areas closed to fishing to consider the implications and risk of displacement and overall fisheries pressure.**
- ✦ **Implementing an Ecosystem-based Approach to fisheries management in accordance with the commitment established in the Fisheries Act to minimise the adverse impacts of fishing activity on marine ecosystem functionality.**
- ✦ **Developing Climate and Nature Smart Fisheries Strategies which include a reduction of pressures from bottom towed gear, the decarbonisation of the fishing fleet, provision of incentives for carbon savings, and ending tax relief for fossil fuel use across the industry through a just transition to low carbon fishing.**



Ambitious action – closing sandeel fisheries in UK waters

The UK’s unique size and status of its sandeel-dependent seabird populations creates a special responsibility for the UK to take ambitious measures to protect marine life in its EEZ. Full closure of the UK EEZ to sandeel fishing will not only provide the greatest conservation gains for a variety of UK breeding seabirds but it will also benefit other sandeel-dependent wildlife, such as porpoises who are under pressure across UK waters⁴².

5.2.2. Bycatch – preventing seabird deaths in fishing gear

In UK waters, thousands of seabirds drown in fishing gear each year. Thankfully, there are cheap and easy solutions to seabird bycatch, most notably in longline and trawl fisheries, which have been tested rigorously, legally mandated and implemented in fisheries around the globe. The RSPB and BirdLife International have been at the forefront of international efforts to tackle seabird bycatch. This includes at the grassroots – directly on fishing vessels, through bycatch mitigation experts the Albatross Task Force (see Case Study) – and at the top-down policy level, through Regional Fisheries Management Organisations and national governments. While progress has been strong in a number of our international target fisheries, action in the UK’s own waters has so far lagged behind. However, it is a success story waiting to happen under the momentum of Nature Positive offshore wind expansion.

Measures such as making fishing gear more visible to seabirds, and behavioural changes in fishing practices have shown we have the potential to dramatically reduce seabird bycatch in UK waters⁴³. As the scale of the issue in UK waters becomes more evident, it is essential that we apply global

best practice and focus on implementing these bycatch solutions, while simultaneously improving monitoring of the most risky fisheries. Therefore, measures to help tackle seabird bycatch should include:

- ✦ **Rolling out Remote Electronic Monitoring (REM) with cameras to effectively monitor fishing activity at sea including catch, discards, mitigation use and wildlife bycatch - this will provide true understanding of the activity and impacts and incentivise best practice⁴⁴.**
- ✦ **Implementing known mitigation options and best practice solutions to tackle bycatch, in particular for longline fisheries.**
- ✦ **Increased support for fishers to innovate and trial new measures and gears to minimise bycatch.**

By adopting such practices and supporting innovation with evidence based, peer-reviewed trials, we have a real opportunity to tackle this solvable issue in UK waters.

In South Africa, the Albatross Task Force (ATF) worked with the local hake trawl fleet to deploy bird scaring lines on fishing vessels to keep them away from trawl cables – there has been a 99% reduction in albatross deaths since the work started in 2006⁴⁵. In Namibia, a similar approach was used to keep seabirds away from baited hooks on longlines, here reducing bycatch by 98%⁴⁶. In both cases, strong regulations and good levels of observer coverage were key ingredients for success alongside the grassroots efforts of the ATF. These simple technical measures have significantly reduced seabird pressures, contributing to more resilient populations, saving tens of thousands of lives.



Credit: Chris Gomersall (rspb-images.com)

5.3. Places for nature to thrive

To safeguard our seabirds as part of a Nature Positive offshore wind expansion, it is imperative we strengthen the MPA network (figure 7), through ensuring ecological coherence for seabirds and effective management of existing areas. This includes the removal of pressures incompatible with achieving GES and ensuring seabirds nests are safe from invasive predators.

5.3.1. Protection at sea

Marine Protected Areas are internationally recognised as key delivery tools for protecting the marine environment and safeguarding our most special habitats and species⁴⁷. Effectively managing and monitoring these important areas provides clarity for marine users and those making decisions to inform how we use our sea space to accommodate our growing and changing needs.

The UK Marine Strategy⁴⁸ makes it clear that MPAs are central to achieving GES in UK waters. On the international stage, the UK Government is taking a lead in the Global Alliance 30x30 initiative⁴⁹, aiming to protect at least 30% of the global ocean by 2030. To be considered as protected, sites should be absent of damaging activity impacting protected features, in favourable condition, or be showing

demonstrable signs of ecological recovery, with management focussed on achieving recovery – not maintaining the status quo.

As activity (and associated pressures), such as the rapid expansion of offshore wind, increase at sea the role of MPAs becomes increasingly important. There is a greater need to capture and protect all areas important to seabird lifecycles, going beyond the protection of seabird nesting sites, to safeguard all key areas of our seas for seabirds, including their foraging areas. All relevant species should be considered in MPA management, and as such, glaring gaps for seabirds, like the Balearic shearwater which is critically endangered⁵⁰, should be addressed with urgency⁵¹.

This requires a need to review and address gaps within the network for seabirds alongside ensuring effective management in order to achieve favourable condition, GES and 30x30 through the following measures:

- ✦ **Our best nature sites must be legally protected over the long-term from damage. Marine Conservation Zones must have equal treatment to SACs/SPAs within the planning system and enforcement powers should be used more effectively to stop these special places from being damaged.**
- ✦ **Effective management should be put in place to ensure that wildlife and habitats are in a good condition or on their way to recovering, in particular through the removal of highly destructive and damaging activity impacting protected features.**
- ✦ **A step change in resourcing for protected areas is critical. Their current poor condition is the result of many years of under-investment and budget cuts to the UK's nature agencies responsible for protecting these places.**
- ✦ **We need robust monitoring and reporting for all protected areas to tell us about the health of these sites and help us understand what management is needed to support nature.**
- ✦ **Set strong targets for improving the health of our protected areas and the species and habitats they support.**
- ✦ **Ensure our protected areas are fit for the future. We need action to ensure that protected areas are ecologically coherent and complete for seabirds, including protection of foraging**





Credit: Andy Hay (rspb-images.com)

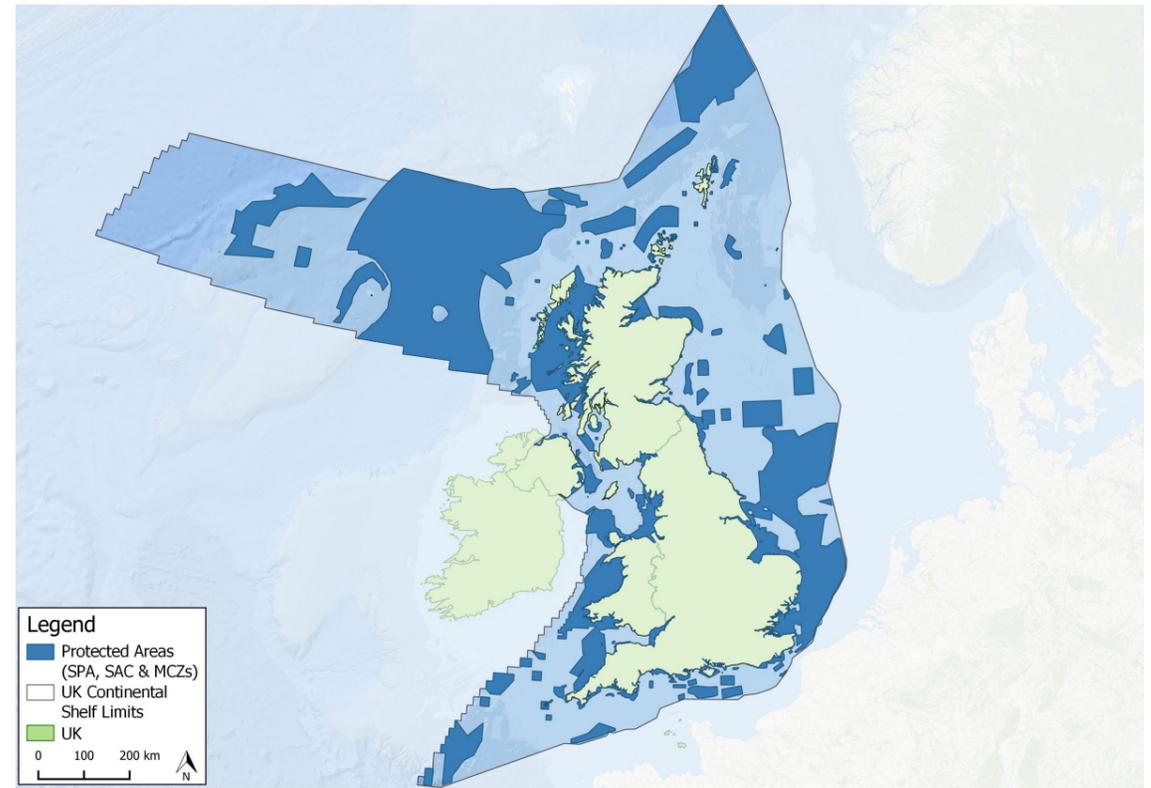


Figure 7. Marine Protected Areas within the UK continental shelf limits including Special Protection Area (SPA), Special Area of Conservation (SAC) and Marine Conservation Zone (MCZ).

5.3.2. Protection of breeding colonies

Seabirds often nest on inaccessible cliffs or islands, which, as well as providing easier access to the sea, is supposed to keep them safe from mammalian predators. And yet, seabirds are the bird group most affected by mammalian predation in the UK⁵². Where burrow-nesting seabirds co-exist with mammalian predators their populations are usually in decline. Management of Invasive Non-Native Species (INNS) has proven to be, both on a national and global scale, an effective mechanism to support seabird populations, (figure 8).

Where mammalian predators have been removed from UK islands, many seabirds are showing promising recoveries. Manx shearwaters, for

example, have shown marked recovery following INNS eradication from both Lundy Island⁵³ and Ramsey Island⁵⁴, more than quadrupling in the first decade on Ramsey. This once again demonstrates the opportunities for seabirds within our grasp. For UK seas to thrive, a priority for the future must be the long-term resourcing of an island biosecurity programme in all UK countries that will:



- ✦ Invest in a strategic programme of removal of non-native mammals from priority seabird islands.
- ✦ Maintain preventative, early detection, and rapid response measures on our internationally important seabird islands, ensuring that they remain free of mammalian predators.
- ✦ Ensure a coordinated approach to island biosecurity across the UK.
- ✦ Promote and support the adoption of biosecurity measures by key stakeholders such as local councils, island communities and businesses.
- ✦ Assess the effectiveness and ensure the continuous improvement of the biosecurity measures.

Priority sites to target would be islands with SPA and/or Site of Special Scientific Interest (SSSI) designations for seabirds, building on the work done by Biosecurity for LIFE project on 42 SPAs. This would encompass approximately 50 islands or island groups around the UK, with the main species to benefit being Manx shearwater, European storm petrel, Leach's storm petrel and puffin. Details of implementation and responsibilities for delivery should be included in national Seabird Conservation Strategies (see 5.1.1). These measures would reduce marine pressures on our seabirds, contributing to a Nature Positive approach to offshore wind expansion.

5.3.3. MPAs and climate change resilience

Ocean recovery will only be achieved if GES is delivered alongside blue carbon restoration and measures to support both climate mitigation and resilience. Effective MPA management, particularly for the seabed, is needed to retain natural carbon capture and storage⁵⁵, embedding climate mitigation and resilience in our marine systems. Bottom-trawling is a significant pressure on seabed habitats, including those capturing and locking away carbon.

Within UK waters we need to see a climate-smart fisheries strategy⁵⁶ as part of the Nature Positive energy transition developed and implemented through effective MPA management and for the UK Government to act on the CCC's recommendation to include saltmarsh and seagrass in the UK's Greenhouse Gas Inventory⁵⁷. Doing so would not only help deliver on climate commitments under the Fisheries Act, but also ensure we protect and increase our seas' resilience to climate change.



Credit: Andy Hay (rspb-images.com)

Island Restoration

Introduced invasive non-native species (INNS), particularly on islands, pose a significant threat to seabirds. In order to secure resilient seas, we need to develop a rolling programme of island restoration to remove mammalian predators from seabird islands and to prevent their (re)establishment through robust biosecurity measures. This should be a UK wide, coordinated approach to establish stronger protection of our seabird colonies.

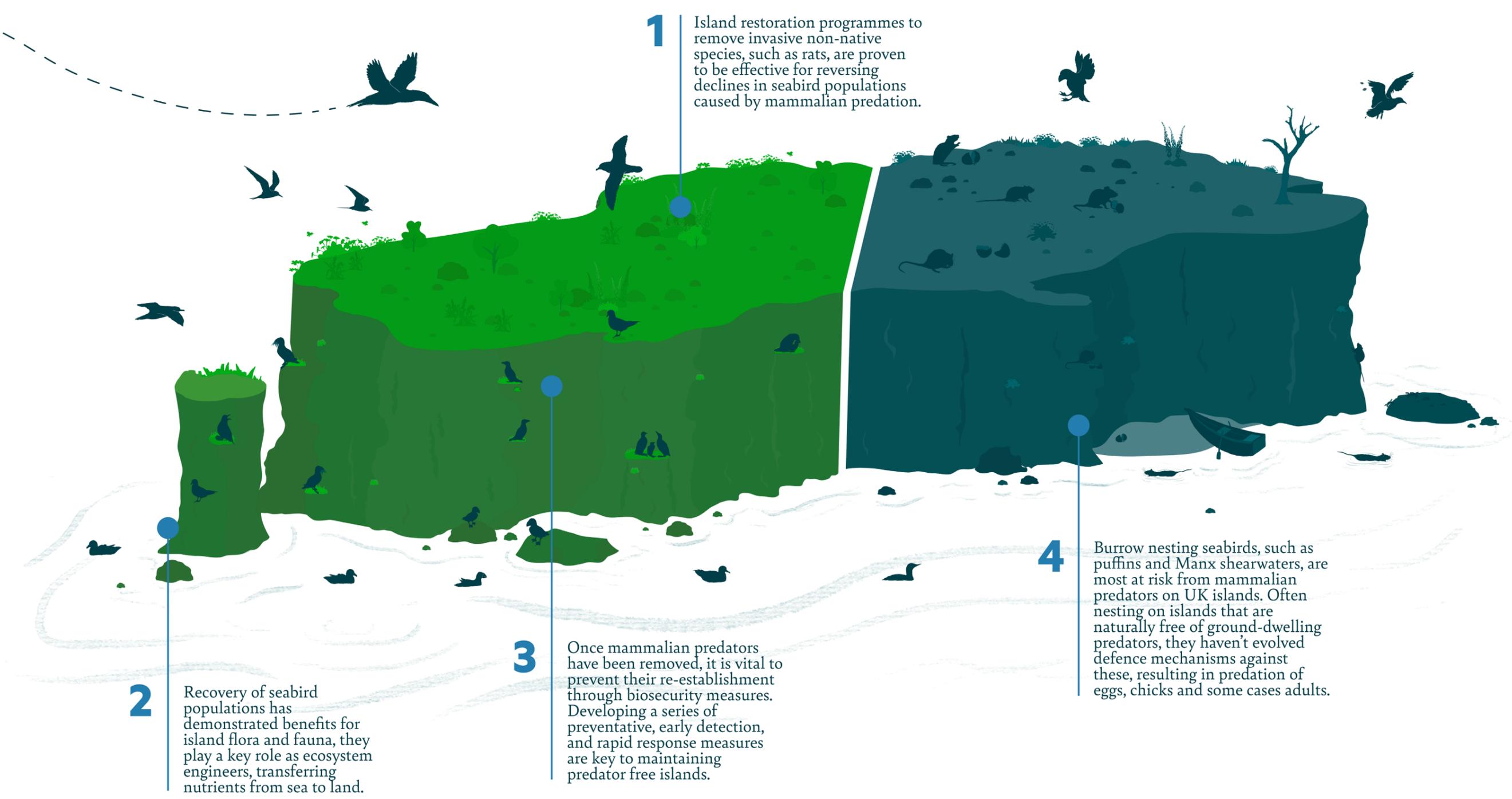


Figure 8. Illustration of the benefits of island restoration for UK seabirds showing the abundance of flora and fauna often in the absence of invasive non-native species (demonstrated by the left side of the island graphic), compared to the lack of species often associated with the presence of invasive species (demonstrated by the right side of the island graphic).

5.5. Pioneering a global standard

5.5.1. UK leadership

The UK is viewed as a world leader in offshore wind but to retain this position the UK must now demonstrate true leadership in offshore wind deployment. We therefore call for a transformative approach to deliver the range of measures outlined in this report to secure truly ambitious, game changing advancements in this technology, and across our seas. Such an approach would place the UK at the forefront of sustainable green recovery and the Nature Positive movement with great potential for global export of technological advances, planning frameworks and expertise.

The UK is clearly part of a much wider ecosystem of nations and actors utilising our seas, and to show true leadership active collaboration is also required. There is much to be gained from international cooperation, particularly across the North Sea which borders nine countries. A strategic approach across coastal states to offshore renewables would facilitate both ocean recovery and more effective action on climate change and energy security.

Between 1984 and 2006, six North Sea Conferences were held which provided the political framework for cooperation on the sustainable management of the North Sea. There is now a real need for a new North Sea Government Forum, established in partnership with OSPAR (the mechanism by which National Governments and the EU cooperate to protect the marine environment of the North-East Atlantic). This could enhance collaboration on issues like cumulative impacts, marine planning, fisheries management and MPAs, provide a clear platform for leadership from the UK and provide impetus for a race to the top amongst all nations, so that the health of the North Sea is not only protected but enhanced and thriving.

5.4. Sustainable seas – marine planning to secure a just transition

Marine wildlife can be highly mobile, with birds, fish and cetaceans travelling between multiple MPAs and boundaries. We therefore need to ensure both the integrity of protected sites and secure nature recovery beyond their boundaries. The removal of pressures from MPAs, or the displacement of activities unable to operate within offshore windfarms, requires strategic consideration both to enable a just transition and to ensure those pressures are addressed rather than simply displaced.

A Nature Positive approach to marine spatial planning will tackle more than wildlife protection. It should provide an approach that ensures marine developments support healthy and productive ecosystems, with marine resources used sustainably, protecting our oceans and seas for generations to come. Plans should offer strategic guidance, underpinned by a clear hierarchy of government’s policies.

An effective Marine Plan should be a vital component of delivering net zero, energy security, nature restoration and achieving GES. This framework is also vital in ensuring a transparent and just energy transition for all sea users. We recommend reform to country level plans so they are:

- ✦ **Strategic - coordinated and coherent actions to reach targets for energy, climate and nature.**
- ✦ **Integrated across policy objectives - establishing a clear hierarchy for the use of sea space compatible with healthy seas, net zero and energy security.**
- ✦ **Evidence based - using the best available data and analysis we have now and as it becomes available to adapt to changing conditions.**

- ✦ **Holistic - to manage and plan across all marine activities and uses are included.**
- ✦ **Protect and restore nature - supporting the protection of nature through thorough impact assessments, safeguarding MPAs and facilitating plan level action to recover nature.**
- ✦ **Spatial - taking account of multi-dimensional space, the plans need to provide clarity for all users of marine space, and identify which areas are suitable for each activity, including where activities can be sustainably co-located.**
- ✦ **Frontloaded - considering ecological impacts at the outset to increase certainty for industry and accelerate sustainable development.**

Actions in the next few years will determine how the UK delivers its offshore wind ambition and whether it can rise to the vital challenge of achieving Good Environmental Status. Reforming with a Nature Positive, holistic framework will make changes to protect nature alongside efficient and sustainable development, helping to streamline the challenges associated with the current decision-making process.



5.5.2. Investing in nature

The last decade has seen a step-change in understanding of the many public and private benefits that nature provides to society. That understanding has led to explorations of how these values can be captured through new markets, business models and value propositions. The UK Government has ambitions to create new environmental markets and leverage new private financing into nature conservation. Saving and restoring nature has two fundamental requirements in this space:

- ✦ We need a transformation in government, business and financial decision-making to internalise their impacts on nature, stop the drivers of loss and ensure citizens face choices that embed Nature Positive within them, including on how our energy needs are delivered.
- ✦ We need to see an increase, and redirection, of financing to achieve our collective ambitions to be a Nature Positive economy and achieve our goal to protect and manage at least 30% of land and seas for nature by 2030.

Significant government and private investment is enabling action to achieve net zero – and energy security. This report has established that nature is our ally in the fight on climate change and that the solutions for nature would also pave the way for climate. We therefore recommend comparable investment in tackling biodiversity loss, linked to global GDP security, and the establishment of Nature Positive offshore wind.

BESS announced a new Offshore Wind Environmental Improvement Package including an industry-funded Marine Recovery Fund. This has potential to combine funding from multiple developers which could then be used by government to deliver compensation mechanisms that are either not possible at the project scale, or outside the remit of the developer. This could, for example, include the designation of new areas for nature or enhanced island biosecurity programmes.

A not dissimilar programme is already being developed in Scotland, albeit focussing on enhanced natural capital rather than compensation and reliant on voluntary donations. Known as the Scottish Marine Environmental Enhancement Fund (SMEEF) and formally launched in 2022, this fund seeks to:

“Enable users benefiting from the rich natural marine resource to voluntarily re-invest in the health and biodiversity of our seas, thereby safeguarding and enhancing it, to support the sustainable growth of those industries into the future, and in turn help to build a wellbeing economy for Scotland’s coastal communities and visitors”⁵⁸.

It is a start and sets a new precedent for investment in nature. It also provides an opportunity to assess what has worked well and what has been less successful which could help accelerate the implementation of a Marine Recovery Fund.



Credit: Andy Hay (rspb-images.com)





06 Conclusion

This report describes how we can make a net zero future, alongside resilient, thriving seas, a reality. It sets out an approach that will provide much needed solutions and certainty for the offshore wind sector whilst placing its development firmly within the context of well managed seas. As is widely agreed, offshore wind will need to be deployed at scale to play its part in tackling the climate emergency and there is much more that the industry, and governments, can do to improve nature protection. But in order to tackle the nature emergency, a wider suite of restoration activity to reduce mounting pressures on marine life and holistically improve marine protection, must take place.

The collaboration of this report, between NGOs and with input from industry representatives, demonstrates the ambition to make this a reality. We are calling for Nature Positive offshore wind, and therefore the key components of such outlined in these pages, to lead the way in government action. As we have reiterated, a true net zero will not be possible without healthy ecosystems as our ally. Offshore wind can be the catalyst for this change.

References

1. Natural England (2021) Natural England's Approach to Offshore Wind. Natural England Technical Information Note, TIN181 https://unfccc.int/sites/default/files/resource/cp2021_01_adv%20.pdf
2. Preventing, halting and reversing the degradation of ecosystems worldwide. United Nations <https://www.decadeonrestoration.org/>
3. Sixth Assessment Report. IPPC. <https://www.ipcc.ch/assessment-report/ar6/>
4. IPBES (2019) Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.
5. Report of the Conference of the Parties on its twenty-sixth session, held in Glasgow from 31 October to 13 November 2021. UNFCCC. https://unfccc.int/sites/default/files/resource/cp2021_01_adv%20.pdf
6. Nature Based Solutions to Climate Change. <https://nbsguidelines.info/>
7. King, D. A. (2004) Climate Change Science: Adapt, Mitigate, or Ignore? SCIENCE. Vol 303, Issue 5655, pp. 176-177. DOI: [10.1126/science.1094329](https://doi.org/10.1126/science.1094329)
8. Shafiee, R. T. (2021) Blue Carbon. Scottish Parliament Information Centre (SPiCe) Briefing <https://sp-bpr-en-prod-cdnep.azureedge.net/published/2021/3/23/e8e93b3e-08b5-4209-8160-ob146bafec9d/SB%2021-19.pdf>
9. Nature Positive www.naturepositive.org
10. Mitchell, I. P., Newton, S. F., Ratcliff, N. & Dunn, T. E. (eds.) (2004) Seabird Populations of Britain and Ireland: results of the Seabird 2000 census (1998-2002). Published by T and A.D. Poyser, London
11. JNCC (2021) UK Biodiversity Indicators 2021- Seabirds. <https://data.jncc.gov.uk/data/7162735c-9fa7-4962-ae7-709d242173f1/ukbi2021-techbg-c5-a.pdf>
12. NatureScot (2020) Scottish biodiversity indicator – The numbers and breeding success of seabirds (1986 – 2019) www.nature.scot/doc/scottish-biodiversity-indicator-numbers-and-breeding-success-seabirds-1986-2019
13. Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D. & Win, I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and Second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114.
14. Marine Strategy Part One: UK updated assessment and Good Environmental Status, October 2019; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/921262/marine-strategy-part1-october19.pdf (downloaded February 2022)
15. Sea surface and water column temperature in 2011-2015. <https://moat.cefas.co.uk/ocean-processes-and-climate/sea-temperature/>
16. Carroll, M. J., Bolton, M., Owen, E., Anderson, G. Q. A., Mackley, E. K., Dunn, E. K. & Furness, R. W. (2017) Kittiwake Breeding success in the southern North Sea correlates with prior sandeel fishing mortality. Volume 27, issue 6. Aquatic Conservation. <https://doi.org/10.1002/aqc.2780>
17. Hayhow D. B., Ausden, M. A., Bradbury, R. B., Burnell, D., Copeland, A. I., Crick, H. Q. P., Eaton, M. A., Frost, T., Grice, P. V., Hall, C., Harris, S. J., Morecroft, M. D., Noble, D. G., Pearce-Higgins, J. W., Watts, O. & Williams, J. M. (2017) The state of the UK's birds 2017. The RSPB, BTO, WWT, DAERA, JNCC, NE and NRW, Sandy, Bedfordshire. <https://www.bto.org/sites/default/files/publications/state-of-uk-birds-2017.pdf>
18. Northridge, S., Kingston, A. & Coram, A. (2020) Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Report prepared for the Department for Environment Food and Rural Affairs
19. British Energy Security Strategy <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>
20. The Sixth Carbon Budget: The UK's path to Net Zero (2020) Climate Change Committee. <https://www.theccc.org.uk/publication/sixth-carbon-budget/>
21. UK enshrines new target in law to slash emissions by 78% by 2035. <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>
22. Piggott, A., Vulcano, A. & Mitchell, D. (2021) Summary Report: Impact of offshore wind development on seabirds in the North Sea and Baltic Sea: Identification of data sources and at-risk species. <https://www.birdlife.org/wp-content/uploads/2021/09/birdlife-offshore-summary-report-digital-compressed.pdf>
23. Glasson, J., Durning, B., Olorundami, T. & Welch, K. (2020) Impact Assessment Unit (IAU). Oxford Brookes University <https://doi.org/10.24384/ax1s-jr48>
24. Dunn, E. (2021) Revive our Seas: The case for stronger regulation of sandeel fisheries in UK waters. Royal Society for the Protection of Birds.
25. Benthic habitats affected by bottom fisheries. <https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/key-messages-and-highlights/benthic-habitats-affected-by-bottom-fisheries/>
26. Offshore wind policy statement (2020) Scottish Government, Energy and Climate Change Directorate. <https://www.gov.scot/publications/offshore-wind-policy-statement/pages/2/>
27. Northern Ireland Executive (2021) Energy Strategy for Northern Ireland – Path to Net Zero Energy Action Plan 2022. <https://www.economy-ni.gov.uk/sites/default/files/publications/economy/energy-strategy-path-to-net-zero-action-plan.pdf>
28. The Crown Estate develops proposals for floating wind in Celtic Sea, outline 4GW opportunity. <https://www.thecrownestate.co.uk/en-gb/media-and-insights/news/the-crown-estate-develops-proposals-for-floating-wind-in-celtic-sea-outlining-4gw-opportunity/>
29. The Crown Estate develops proposals for floating wind in Celtic Sea, outline 4GW opportunity. <https://www.thecrownestate.co.uk/en-gb/media-and-insights/news/the-crown-estate-develops-proposals-for-floating-wind-in-celtic-sea-outlining-4gw-opportunity/>
30. European Commission (2020) Boosting Offshore Renewable Energy for a Climate Neutral Europe. Press Release https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2096
31. The Declaration of Energy Ministers on The North Sea as a Green Power Plant of Europe, (2022) [https://en.kefm.dk/Media/637884570050166016/Declaration%20of%20Energy%20Ministers%20\(002\).pdf](https://en.kefm.dk/Media/637884570050166016/Declaration%20of%20Energy%20Ministers%20(002).pdf)
33. Non-Technical Summary: Floating wind in Wales substructure and port review, CATAPULT Offshore Renewable Energy In partnership with Welsh Government Floating wind in Wales substructure and port review. <https://gov.wales/sites/default/files/publications/2021-09/ports-report-non-technical-summary.pdf>
35. Northern Ireland Executive (2021) Energy Strategy for Northern Ireland – Path to Net Zero Energy Action Plan 2022. <https://www.economy-ni.gov.uk/sites/default/files/publications/economy/energy-strategy-path-to-net-zero-action-plan.pdf>
37. Nature Positive. A Global Goal for Nature. www.naturepositive.org
38. Future management of snadeel and Norway pout in UK waters: call for evidence. Summary of responses (2022). <https://www.gov.uk/government/consultations/future-management-of-sandeel-and-norway-pout-in-uk-waters-call-for-evidence/outcome/summary-of-responses>
39. Chamber and committees. <https://www.parliament.scot/chamber-and-committees/written-questions-and-answers/question?ref=S6W-00600>
40. More fish for seabirds at Dogger Bank. <https://community.rspb.org.uk/ourwork/b/nature-s-advocates/posts/more-fish-for-seabirds-at-dogger-bank>
41. Future management of snadeel and Norway pout in UK waters: call for evidence. Summary of responses (2022). <https://www.gov.uk/government/consultations/future-management-of-sandeel-and-norway-pout-in-uk-waters-call-for-evidence/outcome/summary-of-responses>
42. Calderan, S. & Leaper, R. (2019) Review of harbour porpoise bycatch in UK waters and recommendations for management. WWF
43. Quayle, H., (2015) Filey Bay: Safe Seas for Seabirds December 2015. Royal Society for the Protection of Birds.
44. Marine resources – ensuring long term sustainability: remote electronic monitoring (REM) consultation. <https://www.gov.scot/publications/ensuring-long-term-sustainability-scotlands-marine-resources-remote-electronic-monitoring-rem-consultation/pages/2/#page-top>
45. Maree B. A., Wanless, R. M., Fairweather T. P., Sullivan B. J. & Yates O. (2014) Significant reductions in mortality of threatened seabirds in a South African trawl fishery. Animal Conservation. Print ISSN 1367-9430
46. Da Rocha, N., Opper, S., Prince, S., Matjila, S., Shaanika, T. M., Naomab, C., Yates, O., Paterson, J.R.B., Shimooshili, K., Frans, E., Kashava, S. & Crawford, R. (2021) Reduction in Seabird Mortality in Namibian Fisheries following the Introduction of Bycatch Regulation. Biological Conservation 253: 108915. doi: <https://doi.org/10.1016/j.biocon.2020.108915>
47. Promoting Effective Marine Protected Areas. <https://www.unep.org/explore-topics/oceans-seas/what-we-do/promoting-effective-marine-protected-areas>
48. Part 3 of the UK Marine strategy (2021). <https://consult.defra.gov.uk/uk-marine-strategy-programme-of-measures-3/uk-marine-strategy-part-3/supporting-documents/UKMS3%20Consultation%20Document.pdf>
49. Global Ocean Alliance: 30by30 initiative. <https://www.gov.uk/government/topical-events/global-ocean-alliance-30by30-initiative/about>
50. Balearic Shearwater Puffinus mauretanicus. <http://datazone.birdlife.org/species/factsheet/balearic-shearwater-puffinus-mauretanicus>
51. Phillips, J.A., Banks, A.N., Bolton, M., et al (2021) Consistent concentrations of critically endangered Balearic shearwaters in UK waters revealed by at-sea surveys. Ecol Evol. 11: 1544–1557. <https://doi.org/10.1002/ece3.7059>
52. Roos, S., Smart, J., Gibbons, D., & Wilson, J. (2018). A review of predation as a limiting factor for bird populations in mesopredator-rich landscapes: a case study of the UK. Biological Reviews, 93(4), 1915-1937
53. Booker, H., & Price, D. (2014). Manx shearwater recovery on Lundy: population and distribution change from 2001 to 2013. Journal of The Lundy Field Society, 4, 105-116
54. Bell, E., Bell, M., Morgan, G., & Morgan, L. (2019). The recovery of seabird populations on Ramsey Island, Pembrokeshire, Wales, following the 1999/2000 rat eradication. In C. Veitch, M. Clout, A. Martin, J. Russell, & C. West (Ed.), Island invasives: scaling up to meet the challenge (pp. 539-545). IUCN
55. Burrows, M.T., Moore, P., Sugden, H., Fitzsimmons, C., Smeaton, C., Austin, W., Parker, R., Kröger, S., Powell, C., Gregory, L., Procter, W. and Brook, T. (2021) Assessment of Carbon Capture and Storage in Natural Systems within the English North Sea (Including within Marine Protected Areas). A North Sea Wildlife Trusts, Blue Marine Foundation, WWF and RSPB commissioned report
56. Stephenson, S. and Johnson, A.F. (2021) Shifting gears: achieving climate smart fisheries. Published by WWF, RSPB and Marine Conservation Society
57. Climate Change Committee (2022) Progress in reducing emissions 2022 Report to Parliament. Progress reports: www.theccc.org.uk/publication/2022-progress-report-to-parliament/
58. What is SMEEF. <https://smeef.scot/about>



Contact:

RSPB Policy and Advocacy - poladvinbox@rspb.org.uk

Helen Quayle - helen.quayle@rspb.org.uk

Samuel Wrobel - samuel.wrobel@rspb.org.uk

