



OPINION Aonghais Cook

“Careful planning is needed to protect our seabird populations”

Over a million children across the world have recently staged school strikes in protest about the profound impacts of climate change on the natural world. There is little scientific doubt that these changes are driven by human activity, notably the burning of fossil fuels to generate energy. Governments worldwide have therefore committed to ambitious targets to reduce fossil fuel use, with renewable energy projects playing a key role. Indeed, on leaving office, Barack Obama wrote of “the irreversible momentum of clean energy” in the journal *Science*.

In the UK, offshore wind will be vital in achieving our renewable energy goals. The proportion of the UK’s energy generated by offshore wind varies over the course of a day, month and year. However, at the time of writing over 18% of the country’s energy was being supplied by it (you can check the latest figures here: www.thecrownestate.co.uk/en-gb/our-places/asset-map/#tab-2).

Under the recently announced industrial strategy, the government hopes to increase the proportion of energy produced by offshore wind from 6% in 2017 to over 30% by 2030. As part of these plans, the world’s largest (so far) offshore wind farm, Hornsea Project One, began generating electricity earlier this year. Eventually, its 174 turbines will power over one million homes. In order to further support these goals, the UK is at the forefront of many innovations, including the installation of the first 8-MW turbines in Liverpool Bay and the world’s first floating turbines off the coast of Aberdeen.

In addition to being a world leader in offshore wind, the UK hosts internationally important seabird populations, which it has an obligation to protect. Many of these species have undergone dramatic declines in recent years, and face a myriad of pressures including pollution, climate change and

impacts from fisheries. Whilst a recent study published in *Biological Conservation* suggests that offshore wind may be far less damaging than many of these, we cannot be complacent, and careful planning is needed to ensure wind farms do not negatively affect seabird populations.

SEABIRDS AND WIND FARMS

There are generally considered to be three main impacts of offshore wind farms – collision, the displacement of birds from key foraging areas or other habitat, and the wind farm acting as a barrier to migrating birds or those travelling between their colonies and foraging areas. The relative importance of these effects is likely to vary by species. For example, we know that some, such as Gannets, strongly avoid entering wind farms whilst others, including Cormorants, may even be attracted to them. Whilst we know some species are less likely to enter wind farms, we are less clear about what the implications are. For example, if birds are displaced from foraging areas, do they have access to alternative sites? To properly assess the consequences of displacement and barrier effects, we need a better understanding of their energetic consequences.

Widely reported incidents at onshore sites, like Altamont Pass in California, mean the risk of birds colliding with wind turbines is perceived to be a major issue for offshore wind farms. Analysis by my BTO colleagues and me has shown how flight heights influence collision risk. Species such as auks and shearwaters fly close to the sea surface and are at low risk of colliding with turbines, whilst gulls fly higher and are therefore at greater risk. Our tracking data have also shown how flight heights may vary in relation to time of day and distance from colony. They further highlight how gulls may enter wind farms, and even rest on turbine bases, but avoid



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the turbine rotors. All of this work helps us to better understand how perceptions of risk to seabirds reflect reality and can inform the planning of developments so that potential impacts are minimised.

Whilst we are getting better at understanding the numbers of birds likely to be affected by wind farms, we still struggle to put these numbers into a population context. Seabirds are protected at their breeding colonies and assessments of wind farms-impacts must therefore consider the likely consequences for populations at these sites. At present, the UK is in the enviable position of having

the Seabird Monitoring Programme (SMP), of which BTO is a partner. The invaluable data from SMP can inform assessments and evaluate predicted impacts as wind farms are built and start generating energy. It is important that annual seabird monitoring in the UK is maintained and encompasses the collection of robust data on adult survival and productivity, as any impacts from wind farms are likely to affect these before they become apparent in estimates of abundance. The ongoing seabird census is also a priority, as it will give vital information about the current size of populations for all seabirds (including those which cannot be monitored annually) and changes since Seabird 2000.

Climate change will undoubtedly have wide-ranging, negative repercussions on the environment. Consequently, the benefits of renewable energy are often thought to outweigh any adverse effects of their development. As efforts intensify to reduce our reliance on fossil fuels,

it is clear that offshore wind farms are crucial for meeting the country's energy needs. However, this must not be at the cost of our internationally important seabird populations. Our research has demonstrated that, with careful planning, these impacts can be minimised.

I think that, as an organisation, it is important that BTO can be relied upon to offer impartial advice; we should not be seen to campaign for or against any particular project. This does not mean that we should watch from the sidelines as decisions are made about the future of the marine environment. Instead, we need to make sure that all those involved in deciding upon the future deployment of offshore wind farms are clear about the consequences of any decisions they reach. This means that we have a key role in working with government, NGO stakeholders and industry to ensure that the best possible scientific evidence and advice is available to inform decision-making processes and so enable both sustainable energy generation and the protection of our seabirds. ■

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Find out more

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www.bto.org/wind-farms