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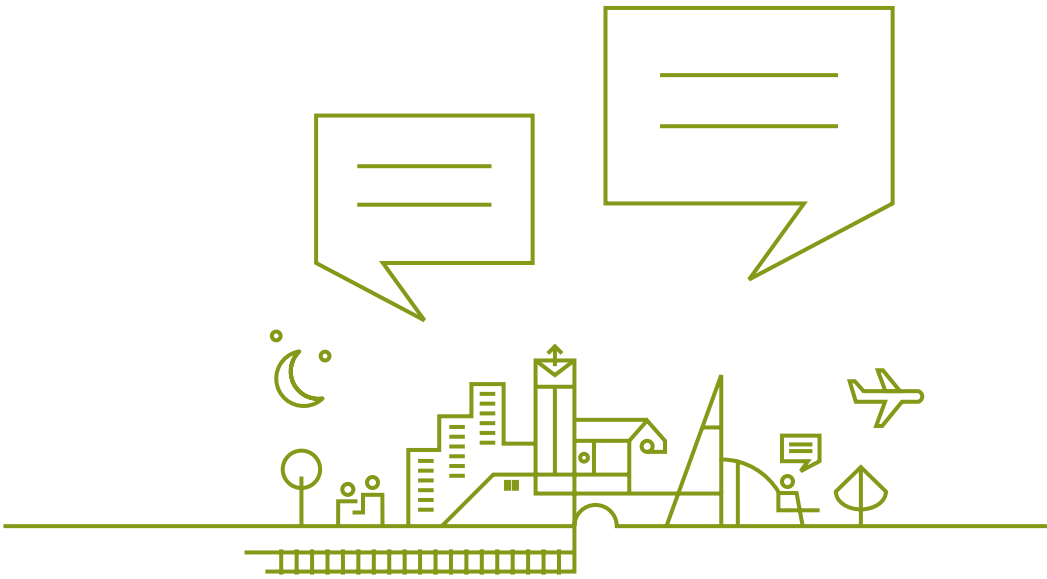
Habitat Regulations Assessment

Thought pieces from UK and international practice



Guest Editor
Ursula Stevenson, MIEMA CEnv REIA

GUEST EDITORIAL

Ursula Stevenson

MIEMA Cenv REIA

I have always thought of Habitats Regulations Assessment as one of the 'dark arts' of the industry. Procedurally, you need to get it just right or risk legal challenge. Robust evidence, alternatives, effective mitigation (but not at the screening stage) and adaptive management are all hotly debated. In terms of environmental protection, I have seen it bring some fairly hefty development proposals, both at strategic and project level, to their knees. This process has teeth! And there are now rumblings that it may change. So when IEMA offered up the role of Guest Editor of this issue, I jumped at the chance to learn more from the impact assessment network.

In 2020, the Government published the Planning White Paper, which set out their approach to planning reform. The White Paper was followed earlier this year by the Department for Levelling Up Housing and Community's consultation on Environmental Outcomes Reports, which largely focused on a new approach Environmental Impact Assessment (EIA) but also covered Strategic Environmental Assessment (SEA). Habitats Regulations Assessment (HRA) hasn't yet been covered in reforms but is set to follow, with an announcement in 2021 from the Secretary of State and a working group review of HRA published by Defra in 2022.

While the consultations on these processes are separate, practitioners share concerns that reforms don't lead to a lower standard of environmental protection or lose the learnings from the last 30+ years of practice. The assessment regimes share similar issues and evidence IEMA has drawn from its members to consistently respond to Government on consultations to date are equally applicable to HRA:

- There is a need to build skills, capacity and resources in Local Authorities, Regulators and Statutory Consultees.
- Assessments would benefit from better information, including robust evidence, learning from other assessments and central coordination of research.
- The importance of either end of the assessment process – starting at the early stages of project development – can lead to more effective mitigation; there is also a need for much greater focus on post-implementation monitoring, feedback and regulation.

Inside this issue there are some insights from Emma Hawthorne from the Office of Environmental Protection on recent research, which can inform effective updates to the planning system and align with some of IEMA's findings summarised above. Glen Gillespie from GoBe consultants discusses the conflict between the climate emergency and ecological emergency being waged in our seas. The thorny issue of 'adaptive management' is tackled by Tristan Folland from Mott Macdonald and Andrew Baker of Baker Consultants raises some good questions about scientific absolutes (read this one with a cup of celestial tea?).

Charlene Smith, one of our new IA Steering Group members, provides some context on challenges with implementation in Malta (an even smaller island than our own, spoiler alert – some of this may sound familiar!). A team from WSP has provided a great example of thinking outside the box when it comes to mitigation. Finally, I'm sure I am not the first person to slightly sweat when someone mentions neutrality in an HRA-related conversation at work, so many thanks to Rikki Therivel who provides a very clear overview of different types of neutrality.

Glen Gillespie
MSc BSc (Hons)

In our rush to combat climate change, are we inadvertently sacrificing our Marine Protected Areas?

This article objectively considers how the future protection of UK Marine Protected Areas could be greeted either with excited anticipation or anxious trepidation. In the context of climate change, UK energy security concerns and Brexit, a major revamp of the most stringent process for habitat protection (Habitats Regulations Assessment, or HRA) is considered necessary to facilitate urgent and imperative infrastructure development such as offshore wind and carbon storage in UK waters. There is mounting pressure on resource-depleted government departments to deliver something new, within a short timeframe, that provides an easier/quicker assessment process whilst continuing to protect and restore the UK's most vulnerable species and habitats. Will everyone win or will there ultimately be a loser?

There is a global climate emergency and a UK energy security crisis – offshore renewables and carbon storage initiatives are widely regarded as the answer. However, protecting our most vulnerable and rare marine sites through a low-tolerance, relatively black and white approach is now considered a hindrance to combatting two of UK society's biggest 21st century dilemmas – climate change and energy security.

New legislation is being fast-tracked to speed up the consenting process, to enable strategic approaches to offsetting adverse effects on designated sites and (even) to revamp the processes for site designation and assessment. However, all of this is happening in a vacuum of strategic planning and there is a danger that government-led streamlining for consents will significantly overshadow and precede the vital legislation, strategic thinking, consultation and planning for site and species protection reforms.

With the EU legislative security blanket now gone, and UK legislation swiftly changing to address society's emergencies, are sensitive marine sites/ecosystems in danger of being overlooked or are they rightly (albeit unfortunately) being relegated to a secondary priority? Surely we can have it all without compromise or prioritisation, but is this a realistic aspiration or simply a shallow political promise?

The inescapable reality is that government departments are under-resourced and frantically recruiting to address the urgency that the emergency presents. There is therefore a risk that these under-pressure government departments will be forced to compromise and pursue easier, quicker, but potentially less preferable and untested, options.

But is there a flip side to all this pessimism? The new Marine Net Gain requirement (the marine equivalent of Biodiversity Net Gain) provides a mechanism to ensure offshore environmental improvements/enhancement. This, it can strongly be argued, is an improvement to the status quo. However, Biodiversity Net Gain as a concept was not birthed overnight and its practical application follows many years of development and pilot projects. However, the UK Government does not have the same time available for developing and testing new legislation and processes for protected sites. Optimists could argue that nature is resilient and will recover, adapt and re-colonise; with extra weight to this argument provided in the undeniable indirect benefits that a reduction in carbon emissions through an increase in renewable energy generation will provide for biodiversity globally.

Defra's Nature Recovery Green Paper[1] is the UK Government's proposed underpinning legislation 'to restore nature and halt the decline in species abundance by 2030'. This is a bold aspiration; however, it is difficult not to speculate that this is simply a smokescreen to ensure the efficient delivery of the Government's higher-profile climate change targets. The forementioned hypothesis is potentially supported further through the undisguised intentions of the UK Government's fast-tracking planning reform to accelerate wind deployment, through changes to legislation/NPPF, as set out in the Government's 'Powering up Britain, energy security plan'[2].

While the UK Government's published intentions for nature recovery are admirable, there is an undeniable titanic clash between the two imperative UK (and global) requirements of halting the significant decline in biodiversity and reducing the effects of climate change

With the stakes so high and Marine Protected Areas already in a state of decline from factors beyond those caused through climate change, are we ready for a major (and rushed) revamp of current processes, particularly the most stringent process for habitat protection (HRA)? It could even be argued that there is a (global) public interests case in slowing down the process of changing the status quo in terms of biodiversity protection. This would allow time for government resource increases, better strategic planning (including consultation), pilot studies and process refinement.

While the UK Government's published intentions for nature recovery are admirable, there is an undeniable titanic clash between the two imperative UK (and global) requirements of halting the significant decline in biodiversity and reducing the effects of climate change, which are bilaterally linked and arguably society's biggest 21st century dilemma. Despite the urgency that these problems present, there is a strong enough argument to support a more careful, balanced and non-political approach to making necessary process changes, and to ultimately ensure there are no losers.

1 consult.defra.gov.uk/nature-recovery-green-paper/nature-recovery-green-paper
2 assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1148252/powering-up-britain-energy-security-plan.pdf

Prof. Riki Therivel

The Habitats Directive and neutrality in England

Introduction

The Habitats Directive prohibits signatory countries from permitting plans and projects that would adversely affect the integrity of Natura 2000 sites[3] Such adverse effects could include changes to water levels for wetland sites, poor air quality for heathland sites, increased recreational pressure for sites that host animals sensitive to disturbance and poor water quality for wetland sites. Often these impacts are the result of many small-scale, cumulative interventions. In areas with significant development pressures, avoiding such impacts by avoiding development is often not possible. In these cases, mitigation of impacts to the point where they have no adverse effect on site integrity – 'neutrality' – is often the favoured option. This article discusses three examples of English strategic-level Habitats Directive 'neutrality': recreational, nutrient and water.

'Recreational neutrality'

The Thames Basin Heaths Special Protection Area (SPA) in South East England is designated for three birds that are sensitive to recreational disturbance, particularly from dog walkers: nightjar, Dartford warbler and woodlark. In 2004, English Nature objected to housing plans near the SPA, arguing that the new housing would generate more recreational visits and associated disturbance to the birds. Based on studies of how far people would drive to walk their dogs, how far cats would travel to prey on birds and the impact of recreational disturbance on birds, it drafted a 'delivery plan' based on Suitable Accessible Natural Green Spaces (SANGS). SANGS must be easily accessible, near centres of population, semi-natural with varied topography, allow for dogs to roam off the lead, accommodate walks of about 2.5km and have a feeling of 'peace and quiet'. The approach agreed after several legal challenges was:

- < 400m from the Thames Basin SPA, no new housing is permitted;
- 400m–5km from the SPA, 8ha SANGS/1,000 new population must be provided;
- larger housing development 5–7km from the SPA may require SANGS.

In neutrality terms, the no-housing buffer avoids recreational impacts and the SANGS combine impact minimisation from new housing and offsets that draw some existing residents away from the SPA in return for some new residents accessing the SPA. The SANGS are a mixture of new recreational sites and improved access at existing recreational sites, funded by a developer contribution for each new home. Between 1999 and 2021, the number of nightjar at the SPA increased by 56%, Dartford warblers by 24%, and woodlark by 32%[4] SANGS-type approaches have since been used elsewhere, for instance at the Dorset Heathlands SAC/SPA.

3 ec.europa.eu/environment/nature/natura2000/index_en.htm.

4 TBH Partnership (2022) Breeding bird results for 2021, www.tbhpartnership.org.uk/news/breeding-bird-results-for-2021

'Nutrient neutrality'

The cumulative impact of nitrogen and phosphorus on wetland, river and estuary Natura 2000 sites became an issue in the wake of the Court of Justice of the European Union 'Dutch nitrogen cases' (C-293/17 and 294/17)[5]. The Dutch cases related to agricultural effluents, but in England effluent from wastewater treatment plants is also a problem. Excessive nutrients speed up the growth of certain plants, disrupting natural processes and impacting wildlife. In England, Natura 2000 sites sensitive to nutrients affect 74 local authorities.

> *Neutrality is increasingly used as a way of both permitting development and protecting the integrity of Natura 2000 sites.*

In 2022, Natural England published advice that requires a nutrient budget to be calculated for each plan/project in these local authorities, and then measures to be put in place to neutralise any nutrient burden from future development[6]. Such measures include developing new wetlands or SUDS, upgrading wastewater treatment sites, and taking land out of intensive agricultural use. For instance, Eastleigh Borough Council has purchased agricultural land and taken it out of grazing use to reduce nutrient inputs, and sells nitrogen and phosphorus 'credits' to developers. In nutrient neutrality terms, where avoidance (no development) is not a realistic option, new wetlands/SUDS act as mitigation, and schemes like Eastleigh Borough Council's act as offsets.

Water neutrality

Low water levels can also affect the integrity of Natura 2000 site either directly (e.g., salmon or otter habitats) or by exacerbating the effects of nutrient inputs. In 2021, Natural England required water neutrality in five local authorities where development might affect the integrity of the Arun Valley SPA/SAC.

The five local authorities studied the cumulative impact of their proposed development to identify how water demand might increase in the future, and how this could be offset[7]. They then considered alternatives to their existing 110 litre/person/day (lpd) water efficiency standards. 62lpd would be achievable only through water recycling systems which would cost £4,000+/dwelling. However, 85lpd was felt to be achievable using flow regulators and water-efficient appliances costing £350–£1,500/dwelling. Possible offset approaches included retrofitting existing homes with flow regulators, retrofitting schools with water-efficient fittings, rainwater harvesting at commercial buildings and reducing irrigation at golf courses.

The authorities' proposed local plans, which have not yet gone to examination, include reduced housing numbers (avoidance), an 85lpd standard (mitigation) and a local authority scheme to retrofit schools (offset).

5 eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62017CA0293

6 Natural England (2022) Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impacts on habitats sites, publications.naturalengland.org.uk/file/5133936477601792

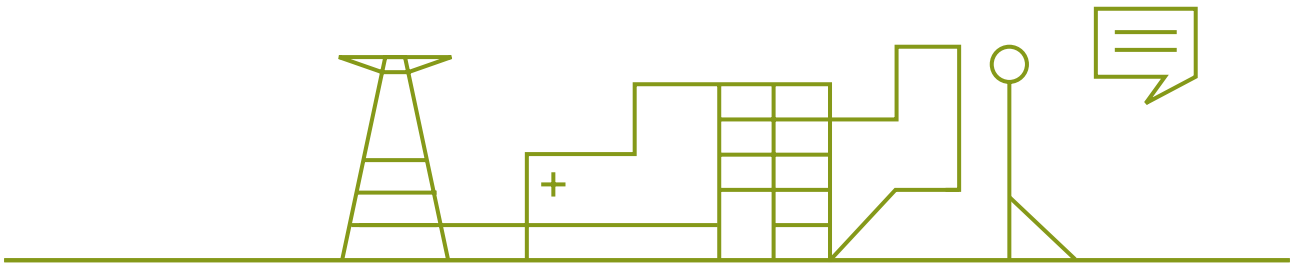
7 Crawley Borough Council, Chichester District Council and Horsham District Council (2022). Sussex North Water Neutrality Study, Part C – Mitigation Strategy, www.chichester.gov.uk/media/37581/Sussex-North-Water-Nautrality-Study-Part-C-Mitigation-Strategy/pdf/EYP-JBAU-XX-XX-RP-EN-0004-A1-C01-Water_Neutrality_Assessment_Part_C.df

Conclusion

Neutrality is increasingly used as a way of both permitting development and protecting the integrity of Natura 2000 sites. However, any approach to neutrality must be based on robust data and developed with care:

- The 'mitigation hierarchy' must be followed: avoidance must be considered first, then reduction/mitigation of impacts and only then offsets.
- Neutrality measures must be shown to work from the beginning of a plan/project, and for the entire length of time that it is in place.
- Neutrality measures must be achievable, allowing development to be viable.
- Mitigation measures must not be considered at the screening stage, but must be determined as part of an appropriate assessment of the impact of the proposed plan.
- Offsets must be additional: they cannot use measures already in place or required for other purposes.

Requirements for neutrality have engendered much creativity and seem to work in practice. Arguably, they would form a good basis for any future environmental output reporting system, particularly for dealing with cumulative impacts.



Emma Hawthorne

Office for Environmental Protection

Why is the Office for Environmental Protection reviewing the implementation of environmental assessment regimes?

There is clearly tension between the need to build new homes and infrastructure and the need to protect the environment. But the two need not be in conflict if the environment is built into decision-making from the outset, and if environmental regulations are well designed and well implemented.

Environmental assessments are one mechanism through which we balance the competing priorities of development and nature, and this is an important time for these regimes. The Government has stated an intention to replace or modify the Habitats Regulations Assessment (HRA), Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) legislation, for example, in its nature recovery green paper last year and via the Levelling Up and Regeneration Bill (LURB). At the Office for Environmental Protection (OEP), we are taking a keen interest.

Parliament established the OEP in 2021 to hold government and other public authorities accountable for their environmental commitments and environmental law. Our remit covers England and Northern Ireland, and we are central to a new system of environmental governance, which includes Environmental Improvement Plans (EIPs), legally binding targets and the Environmental Principles Policy Statements.

We have four main functions: scrutinising governments' progress with their EIPs and targets; scrutinising the implementation of environmental law; providing advice to government; and investigating governments' and other public authorities' non-compliance with environmental law, taking enforcement action where needed.

It is by scrutinising environmental law that we are seeking to inform and influence the future development of environmental assessment regimes. We aim to provide independent evidence and analysis to assist those involved in designing and implementing future approaches.

Legislative reform presents opportunities to achieve improvements over the current regimes, but there are also risks. Reform must be approached with care, based on the proper assessment of its impacts and to ensure clarity for those affected.

We submitted evidence to the LURB Committee raising concerns that the Government had not provided its assessment of the effectiveness of current EIA and SEA legislation[8]. We repeated these concerns in our response to the Government's consultation on its proposed Environmental Outcomes Reports[9]. In our advice to Government on its proposals for reform of HRA, we also queried the absence of a substantive evidence base or specific proposals that presented the case for reform[10].

Any substantive change to the existing regimes should be based on understanding how they operate, with the evidence of this set out transparently for Government to be held to account against. Reform should then represent a step up on what we already have. This is not only to justify the risks of legislative reform, but because the Government has legally binding environmental targets it must meet with a pressing timeframe. These include a target to halt nature's decline by December 2030.

Our work has included a review of the implementation of the existing environmental assessment regimes to explore how effective they have been on the ground. Readers may have inputted into this work, for which we are grateful. We have also reviewed relevant legal literature and case law, and assessed how environmental assessment regimes operate in other countries. From this, and other work, we intend to report to Parliament with an independent, evidence-based view on the implementation of the existing regimes.

Overall, we have found that problems with the existing environmental assessment regimes mainly stem from their implementation, rather than from the legislation itself. This applies to HRA, but also EIA and SEA.

Emerging themes from our research are:

1. There is a need for **improved access to the necessary expertise.** There are skills shortages, capacity limitations, lack of government guidance and training provision. This is felt to be a key contributor to delays, disproportionate reporting and assessment requirements, and inconsistent decision-making.

2. There is also a need for **improved access to the necessary information.** Those involved in environmental assessment require environmental data that is current and of sufficient quality. Our research highlights to us two key issues regarding data. First, that there are no single agreed standards regarding the quality of environmental data, and second, that there is no central database.

3. Another theme is a la**ck of post-consent monitoring and enforcement.** Evidence shows weak practice in ensuring measures to mitigate environmental impacts are implemented and are effective. In addition, evidence is not fed back into the system to improve the accuracy of future assessments and refine the assessment process.

4. The last theme is that regimes could be improved with **earlier, more integrated, assessment.** Our evidence suggests that for all regimes, but for SEA in particular, earlier consideration of the environment should occur at the feasibility stage, otherwise assessments can amount to 'box ticking'.

8 www.theoep.org.uk/report/oep-written-evidence-levelling-and-regeneration-bill-committee
9 www.theoep.org.uk/report/new-assessment-approach-developments-must-lead-environmental-improvements-says-oep
10 www.theoep.org.uk/report/oep-response-government-nature-recovery-green-paper-and-advice-proposals-reform-habitats

Reform should then represent a step up on what we already have. This is not only to justify the risks of legislative reform, but because the Government has legally binding environmental targets it must meet with a pressing timeframe.

Resolution of these issues has the potential to make consideration of the environment in the planning system more effective. This should lead to greater coherence between the many different measures for environmental protection and improvement, including new measures such as Biodiversity Net Gain, local nature recovery strategies and the proposed environmental outcome reports. Ultimately, this should help government meet its ambitions for the environment.

We intend to publish and present our report before Parliament in the autumn, and the Government is required to respond. Our report will be available on our website: www.theoep.org.uk.

Sioni Hole, Ursula Digby, Phil Peterson, James Ellaway, Bethan Tuckett-Jones and Stuart Ireland

No Farm, No Fowl: A novel approach for mitigating road traffic air quality impacts on National Site Network and Ramsar sites

There is limited evidence of effective mitigation to address air quality impacts from road traffic emissions on National Site Network (NSN) or Ramsar sites[11]. Attempts have included speed limits, pollution barriers and tree shelter belts. However, these techniques may have conflicting outcomes, can cause difficulties in quantifying efficacy and could affect the viability of a scheme. In addition, such measures would often be insufficient to address significant increases in traffic volumes close to European sites. Furthermore, case law[12] has demonstrated the difficulties in applying habitat creation or enhancement measures for the purposes of mitigation under the Conservation of Habitats and Species Regulations, 2017 (as amended). As such, road developments with air quality impacts are increasingly facing challenges because there is a lack of reliable or available mitigation with the degree of certainty required to meet the legal tests.

An alternative and novel approach to mitigation, targeting the cumulative airborne pathway for pollutants, has been pioneered by WSP. This mitigation technique can demonstrably avoid otherwise harmful effects on NSN or Ramsar sites.

The example described relates to a new 60mph, single carriageway, all-purpose road, which was subject to screening for air quality impacts as part of the scheme's Habitats Regulations Assessment (HRA). The closest site to the scheme's Affected Road Network (ARN), the Midland Meres and Mosses Phase 2 Ramsar site lies approximately 210m north of the operational carriageway. This is beyond the distance normally applied to screening for impacts based on existing guidance[13]. However, Natural England (2018)[14] indicate that in unusual cases, assessment may need to extend beyond 200m of the ARN where it is considered there is a 'credible risk' of impacts extending further.[15]

11 jncc.gov.uk/our-work/ramsar-convention

12 Including Briels v Minister van Infrastructuur en Milieu (C-521/12) and Hilde Orleans & Others v Vlaams Gewest (joined cases C-387/15 and C-388/15).

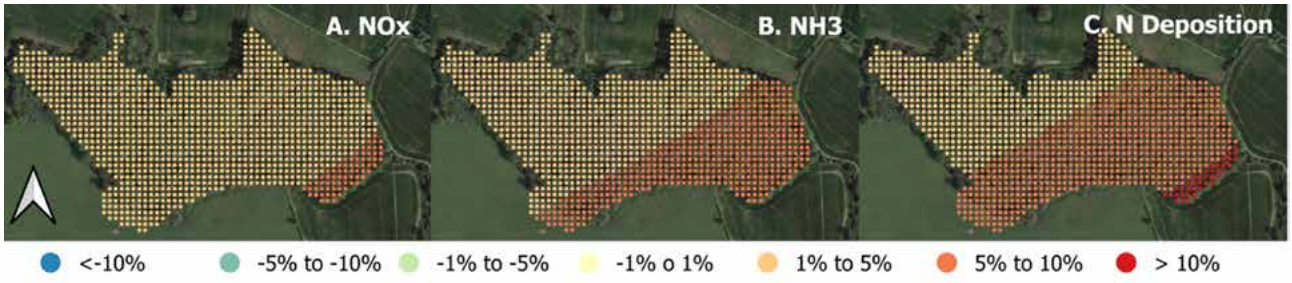
13 Highways England (2019). *Design Manual for Roads and Bridges (DMRB), Sustainability and Environmental Appraisal, LA 105 Air Quality,* Highways Agency, London. Available online at: www.standardsforhighways.co.uk/dmrb/search/10191621-07df-44a3-892e-c1d5c7a28d90.

14 NEA001 (2018). *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations.*

15 In the case of the scheme, it was considered necessary to undertake an assessment of air quality impacts beyond 200m of the ARN due to a credible risk of impacts. It was considered that there would be a significant increase of traffic flows (from a baseline of zero) along the scheme, which suggested an increased potential for significant impacts beyond 200m. In addition, dispersion modelling for other ecological receptors which were present within 200m of the scheme alignment, but extended greater than 200m beyond it, also demonstrated that there was potential for exceedances of the 1% screening threshold.

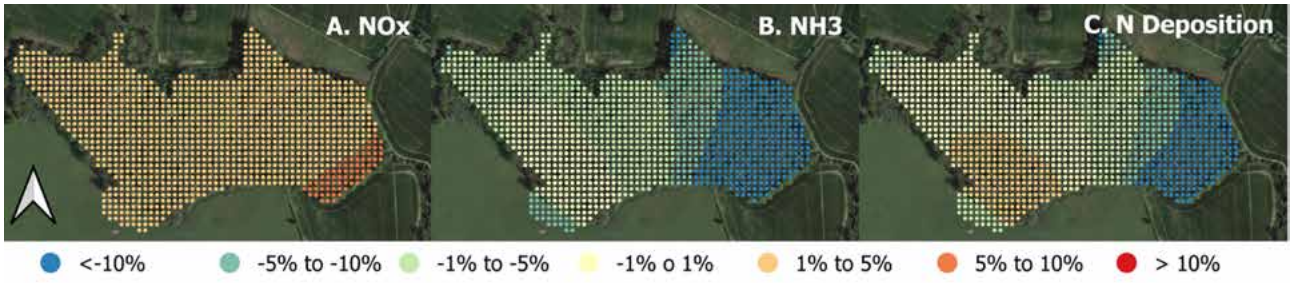
The air quality assessment concluded that there were impacts significantly greater than 1% of the lower critical load for nitrogen deposition and the critical levels for NOx and NH3 concentrations across the majority of the Ramsar site (Figure 1). Although the benchmark was not exceeded for NOx, existing rates of nitrogen deposition and NH3 concentrations were well in exceedance of the relevant critical loads/levels. The HRA subsequently determined that in the absence of mitigation this would result in an adverse effect on the integrity of the site.

Figure 1: **Modelled impacts across Hencott Pool, with no mitigation applied, on: A. NOx concentrations, B. Ammonia concentrations, and C. Nitrogen Deposition rates Values are provided as a percentage of the relevant critical levels/loads where applicable.**



As the road follows a new alignment (i.e., there were no existing road-based pollution sources that could be simultaneously mitigated), the use of standard mitigation strategies proved insufficient. Instead, we identified that modifying agricultural activity on land areas around the Ramsar site would result in a reduction in ambient NH3 concentrations across the site, which would in turn reduce the contribution of NH3 to nitrogen deposition. The result of this mitigation was that NH3 concentration and nitrogen deposition impacts from the scheme to the Ramsar site were almost entirely negated. This left a maximum residual impact of 0.25kg N/ha/yr, with reductions in nitrogen deposition across the majority of the site (Figure 2).

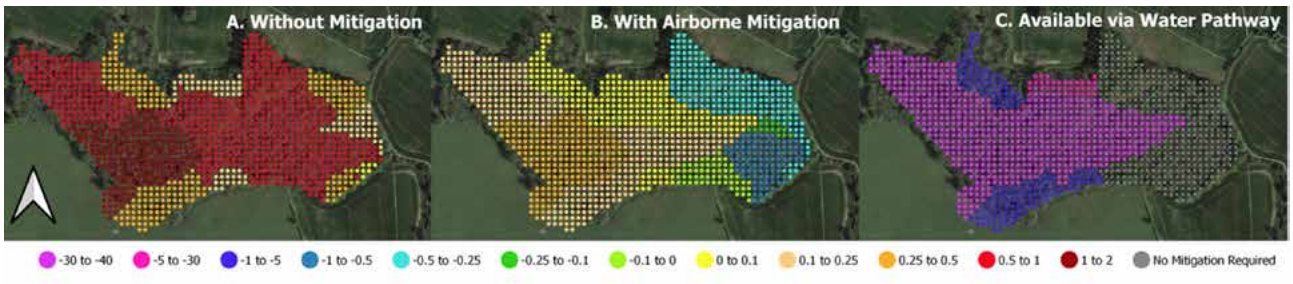
Figure 2: **Modelled impacts across Hencott Pool, with the application of mitigation on: A. NOx concentrations, B. Ammonia concentrations, and C. Nitrogen Deposition rates Values are provided as a percentage of the relevant critical levels/loads where applicable.**



Following consultation with Natural England, it was concluded that with this mitigation, and considering the characteristics of the site, the residual impact from the scheme would have no adverse effect on the integrity of the Ramsar site, provided that the low nutrient land-use change required for mitigation could be secured in perpetuity and would not frustrate future restoration efforts.

Further (and separate) to this agreement of no adverse effect, additional catchment-based modelling was undertaken by WSP to provide added confidence to the conclusion. This considered the additional reduction of nitrogen from hydrological connections to the site through surface and sub-surface flow pathways from the same area of land where agricultural activities would cease. The decrease of ammonium (NH4+: the aqueous form of ammonia) and nitrates (NO3-: the aqueous form of nitrogen dioxide) in surface and sub-surface water would serve to mitigate against any ammonium and nitrates (converted from airborne nitrogen deposited by the scheme) in the soil and water of the Ramsar site. We calculated that the removal of these sources of nitrogen would equate to a nitrogen reduction for the whole of the Ramsar site of up to 297kg N/yr (Figure 3).

Figure 3: **Hencott Pool Nitrogen Deposition from the Relief Road: A. Without Mitigation, B. With Airborne Mitigation, and C. Mitigation Available via the Water Pathway. Values expressed as maximum mass of Nitrogen per catchment area in kg N per annum.**



It is difficult to provide a precise quantitative estimate of the change in specific proportions of NH4+ and NO3- available for uptake by the plant community within the Ramsar site. It is nevertheless clear (qualitatively) that there would be a significant overall decrease in nitrogen levels transported to the Ramsar site, taking the site closer towards restoration and a low nutrient status and creating capacity for beneficial plant community change.

Tristan Folland

MOTT MACDONALD

'Habitats Regulations': dispelling all reasonable scientific doubt and adaptive management are not mutually exclusive

During stakeholder consultation for the European Commission's 'Guidance document on wind energy developments and EU nature legislation' (European Commission, 2020)[16], more than one practitioner expressed the view that it was not possible to apply adaptive management to a plan or project that had required an appropriate assessment. The underlying thinking behind this view was that the need for adaptive management would presuppose a level of uncertainty in the findings of the appropriate assessment that it in effect undermined the imperative to dispel all reasonable scientific doubt. This view of incompatibility may have been related to the application of established legal principles within some member states, such as res judicata and functus office. These principles in effect mean that any decision is final and there is no power to re-examine that decision. The view that dispelling all reasonable scientific doubt and adaptive management are mutually exclusive does not appear to be prevalent in the UK. In the context of the 'Habitats Regulations', this paper highlights the key aspects of uncertainty and risk management in impact assessment and provides a recent example from Portugal on why adaptive management is so important.

Uncertainty in impact assessment is inherent and typically unavoidable (Glasson et al., 1999; Tennøy et al., 2006[17] and can be categorised in various ways, e.g., ignorance, unpredictability and ambiguity (Opdam et al., 2009[18]. However, in assessing a plan or project under the 'Habitats Regulations', a competent authority must rule out all reasonable scientific doubt that the proposal would not have an adverse effect on the integrity of the site (Department for Environment, Food & Rural Affairs, Natural England, Welsh Government, and Natural Resources Wales, 2001)[19]. When considering the inherent uncertainty in impact assessment, no decision by a competent authority will be free of risk.

16 European Commission (2020). *Guidance document on wind energy developments and EU nature legislation.* Luxembourg: Publications Office of the European Union.

17 Glasson, J., Therivel, R. and Chadwick, A. (1999). *Introduction to environmental impact assessment. Principles and procedures, process, practice and prospects 2nd edition.* London: UCL Press.
Tennøy, A., Kværner, J. and Gjerstad, K.I. (2006). 'Uncertainty in environmental impact assessment predictions: the need for better communication and more transparency'. *Impact Assessment and Project Appraisal, 24*(1), pp.45–56. Available at: doi.org/10.3152/147154606781765345.

18 Opdam, P.F.M., Broekmeyer, M.E.A. Kistenkas, F.H. (2009). 'Identifying uncertainties in judging the significance of human impacts on Natura 2000 sites'. *Environmental Science & Policy, 12*(7), pp.912–921. Available at: doi.org/10.1016/j.envsci.2009.04.006.

19 Department for Environment, Food & Rural Affairs, Natural England, Welsh Government, and Natural Resources Wales, (2021). Habitats regulations assessments: protecting a European site. Available at: www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site#follow-hra-principles (Accessed: 16 June 2023)

Although controversial and subject to debate (Hansen & Tickner, 2013)[20], the precautionary principle provides decision-makers with a framework for dealing with risk and uncertainty when exercising their duties. The principle does not seek to achieve the unrealistic goal of excluding all risk (European Commission, 2001)[21], although in some cases the levels of uncertainty may be unacceptable. In the context of the 'Habitats Regulations', decisions are necessarily contingent on the limits of contemporary scientific knowledge and the concept of 'acceptable' risk at the time of consent.

decisions are necessarily contingent on the limits of contemporary scientific knowledge and the concept of 'acceptable' risk at the time of consent.

A recent example from Portugal highlights how the limits of contemporary scientific knowledge change over time and why it is so important that adaptive management is an essential part of the impact assessment and Habitats Regulations process. The Environmental Impact Assessment (EIA) for a proposed airport development on the Tagus estuary in Lisbon, Portugal, was published in 2019 (PAO, 2019)[22]. Based on bird count data, the EIA estimated under different scenarios that 0.46–5.5% of the estuary's population of black-tailed godwit (Limosa limosa), a wading bird, would be adversely affected by the proposed airport. Subsequently, independent research data from observations of individually marked (colour-ringed) birds was carried out (Nightingale et al., 2023)[23]. A network analysis approach was applied to gain an understanding of how black-tailed godwit used different locations on the estuary within and between years. By contrast to the EIA predictions, the network analysis estimated the proportion of the black-tailed godwit population adversely affected by the proposed airport to be in the order of 68.3%. Whilst mathematical models are a simplification of reality and as a result are also subject to uncertainty – 'All models are wrong, but some are useful' (Box, 1979)[24] – in the absence of adaptive management, the potential environmental effects of the proposed airport may have been of an unacceptable order of magnitude greater than those predicted by the EIA.

However, it is clear from government guidance on appropriate assessment that the inherent uncertainty of impact assessment is acknowledged, and the need to consider monitoring of impact predictions and mitigation effectiveness together with corrective actions in the event of mitigation failure is necessary (Department for Environment, Food & Rural Affairs, Natural England, Welsh Government, and Natural Resources Wales, 2021). This is particularly important given that impact assessments under the Habitats Regulations concern sites of international importance and adaptive management provides the last line of defence against unacceptable impacts.

20 Hansen, S.F & Tickner, J.A. (2013). 'The precautionary principle and false alarms', in *European Environment Agency Late lessons from early warnings: science, precaution, innovation*. Copenhagen: European Environment Agency, pp. 17–45.

21 European Commission (2001). Communication from the Commission on the precautionary principle. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52000DC0001 (Accessed: 16 June 2023).

22 PAO (Profico Ambiente e Ordenamento) (2019) EIA do aeroporto do Montijo e respetivas acessibilidades. Volume III – Anexos temáticos, Anexo 6 – Sistemas ecológicos. Available at: https://siaia.apambiente.pt/AIADOC/AIA3280/anexo_6_eia_am_voliii_sistema_ecologicos201972719480.pdf (16 June 2023).

23 Nightingale, J., Gill, J.A., Þórisson, B., Potts, P.M., Gunnarsson, T.G. and Alves, J.A. (2023). Conservation beyond Boundaries: using animal movement networks in Protected Area assessment. *Anim. Conserv*. https://doi.org/10.1111/acv.12868.

24 Box, G.E.P. (1979). Robustness in the Strategy of Scientific Model Building. Madison: Mathematics Research Center, University of Wisconsin-Madison.

In post-Brexit UK, adaptive management has emerged as one of the central recommendations from the Government in England to verify the predictions made in impact assessments and ensure that any proposed mitigation is effective within the timeframes agreed as part of the planning process (Department for Levelling Up, Housing & Communities, 2023)[25]. With the outcome of the Habitats Regulations review promised in the Delemere speech (Department for Environment, Food & Rural Affairs and The Rt Hon George Eustice MP, 2021) [26,27], yet to be made public, it remains to be seen if the Government will align and integrate the environmental principles and Environmental Outcomes Report recommendations into any reforms of the 'Habitats Regulations' assessment process.

25 Department for Levelling Up, Housing & Communities (2023). *Environmental Outcomes Report: a new approach to environmental assessment.* Available at: www.gov.uk/government/consultations/environmental-outcomes-reports-a-new-approach-to-environmental-assessment (Accessed: 16 June 2023).

26 Department for Environment, Food & Rural Affairs and The Rt Hon George Eustice MP (2021). *Environment Secretary speech at Delamere Forest on restoring nature and building back greener.* Available at: www.gov.uk/government/speeches/environment-secretary-speech-at-delamere-forest-on-restoring-nature-and-building-back-greener (Accessed: 16 June 2023).

27 Department for Environment, Food & Rural Affairs (2023). *Environmental principles policy statement.* Available at: www.gov.uk/government/publications/environmental-principles-policy-statement/environmental-principles-policy-statement (Accessed: 16 June 2023).

Andrew Baker
BSc FCIEEM

Habitats Regulations Assessments and the search for celestial teapots

Habitats Regulations Assessments have formed a large proportion of my work for more than 15 years. I am primarily a scientist and a professional ecologist, but for the past 20 years I have taken a strong interest in the application of nature conservation law. The more I work on HRAs, the more jaundiced my views have become of a system that has a significant flaw at its core. As a consequence, I consider that parts of the process are unscientific and open to serious abuse.

> *the requirement to prove a negative does need to be very tightly regulated, since without proper oversight the system is open to abuse.*

The key part of the legislation which governs the assessment of plans and projects is Regulation 63; and 63(5) is where the problem resides, stating 'In the light of the conclusions of the assessment … the competent authority may agree to the plan or project only after having ascertained that it **will not** adversely affect the integrity of the European site' [my emphasis]. The regulations therefore set out a strict requirement to prove a negative, i.e., we must show that the effect will not affect a European site. Furthermore, the case law has established that if there is any reasonable scientific doubt, it must be assumed that there is an effect and either the project must be rejected or further legal tests invoked (i.e., the consideration of alternatives, IROPI and compensation). This phrase has the effect of turning the presumption of innocence – a fundamental principle of most legal systems – on its head; since when it comes to an HRA, one is guilty until proved innocent.

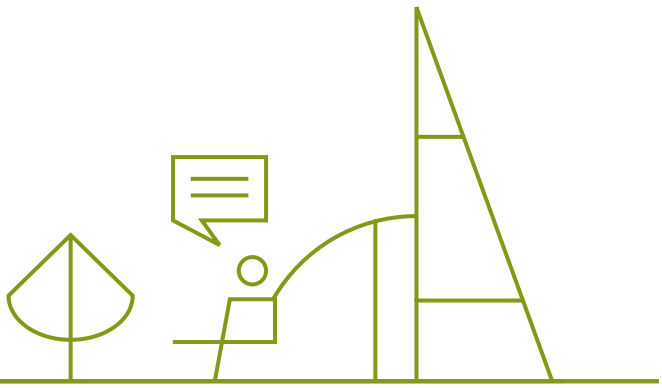
This legal burden of proof raises a fundamental scientific problem too. Scientific method has been developed based on the fundamental fact that it is very difficult to prove a negative, i.e., that a 'hypothesis is not true' or 'a phenomenon does not exist'. Instead, we pose a null hypothesis, that there is no relationship between two variables and through experimentation and statistical analysis we reject the null hypotheses once the data has shown that a relationship does exist. Not being able to reject the null hypothesis does not, however, prove a negative.

The requirement to prove a negative in an HRA has therefore resulted in the widespread search for celestial teapots. Let me explain. The philosopher Bertrand Russell used the analogy of a celestial teapot for those making unfalsifiable claims. Russell said that the burden of proof should lay upon a person making empirically unfalsifiable claims, rather than it falling to others to disprove their claim. His analogy was that if a person were to assert that there is, within the solar system, a teapot orbiting the sun and the convention was that we should assume its existence until proven otherwise, nobody could disprove that assertion and the celestial teapot must exist. Now, of

course, we could probably prove that there is no celestial teapot, but even with the Hubble telescope it would take a huge amount of time and money to prove the absence of the purported pot.

I was recently talking to a fellow ecologist – an expert in bat ecology. He was starting a suite of surveys on an isolated hedge in the middle of an arable field at the behest of the local planning authority ecologist and Natural England. They had asked him to prove that the removal of the hedge would not have an adverse effect on an SAC designated for lesser horseshoe bats, which was located over 6km away. The search for the celestial teapot was on. For those not familiar with the ecology of this species, the chances of them being present in such an environment is about as close to zero as one could get. Unfortunately, such situations are not uncommon.

Given what I have said above, you would be forgiven for thinking that I am an advocate for changing this the part of HRA law, but, paradoxically, I am not. In my view, the current legal process for HRAs is very clear and not the legal assault course that some have described it as. However, the requirement to prove a negative does need to be very tightly regulated, since without proper oversight the system is open to abuse. Unfortunately, the regulator in England (Natural England) has been the subject of significant budget cuts and simply does not have the resources to properly regulate a system where a plan or project is guilty until proven innocent. Until such time as they are given the proper resources required, I fear that abuses of the HRA process will continue, where decisions are made based on hearsay and unfalsifiable myth, rather than sound science.



Charlene Smith
B.A. (Hons.) M.A. PIEMA, Ph.D. Candidate
University of Malta, Faculty for the Built Environment

The challenges of implementation of Habitats Assessment in a small island state – the case study of Malta

Setting the geographical context

With its limited land area of 316km^2, achieving a balance between economic advancement and sustainable development is a constant challenge in a small island state like Malta. The same would apply for the safeguarding of protected sites, particularly those protected under the EU Habitats Directive (92/43/EEC[28]) and the EU Birds Directive (2009/147/EC[29]). As part of the obligations arising from these two legislative documents, any EU Member State is obliged to create and designate specific sites for the protection of natural habitat types and species, together with wild birds and their habitats.

In the case of Malta, the legal requirements arising from these two EU Directives have been transposed and are implemented via the Flora, Fauna and Natural Habitats Protection Regulations (Subsidiary Legislation 549.44[30]), through which protected sites are included in the Natura 2000 network[31]. Designated sites can be either: (i) Special Areas of Conservation (SACs)/Sites of Community Importance (SCIs) in relation to terrestrial and Marine Protected Areas, or (ii) Special Protected Areas (SPAs), for the protection of wild birds and their habitats. Malta has approximately 43.6km^2 (13.8%) of its land area covered by Natura 2000 sites, while 4,138km^2 (35.5%) of its waters are protected through the same legislative provisions[32]. These translate as 40 sites designated as a SAC/SCI under the provisions of the Habitats Directive, while 22 sites are designated as a SPA as per the Birds Directive[33]. Additional details regarding the specific sites can be accessed via https://era.org.mt/topic/natura-2000-datasheets-maps.

28 eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01992L0043-20130701
29 eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147
30 legislation.mt/eli/sl/549.44/eng/pdf
31 ec.europa.eu/environment/nature/natura2000/index_en.htm
32 era.org.mt/topic/natura-2000-in-malta/
33 Data accessed via the European Environment Agency (EEA) portal: tableau-public.discomap.eea.europa.eu/views/Natura2000onlinelist/AllNatura2000sites

Implementation and its challenges

Regulation 19 of the Flora, Fauna and Natural Habitats Protection Regulations (S.L. 549.44), transposes Regulation 6 of the Habitats Regulations, requiring that an assessment is carried out for all plans or projects which are not directly connected with or necessary to the management of the protected site and which may give rise to significant effects upon a Natura 2000 site, or on a habitat or species for which the site was designated. The Appropriate Assessment (AA) is carried out in order to guarantee that such sites suffer no unnecessary damage as a result of either a project or a plan.

> *seeing that these assessments are carried out effectively, proportionately and in a timely manner would ensure that. Ideally. all interests are taken into consideration*

In general terms, there is no distinct difference in the implementation of the crucial stages of the Appropriate Assessment process in Malta and the UK, which is screening and the carrying out of detailed studies. Similarly to the UK, the screening exercise is carried out for developments which are being proposed within the boundaries of protected sites forming part of the Natura 2000 network, or any developments that may affect protected habitats or species. Screening in Malta is carried out at the first round of the assessment stage, when the permitting authority (in Malta's case, the planning authority – PA), consults with its external consultees (in Malta's case, the Environment and Resources Authority – ERA) in relation to applications for development permission. Being the authority responsible for the implementation of the regulations related to AA, the ERA assesses such applications with respect to their potential impacts on the environment, including Appropriate Assessment. Screening ostensibly aids in highlighting potential impacts on the integrity of the Natura 2000 site; however, it is the overall position taken by the authority on a proposal that is most often given more importance at the decision-taking stage. Not necessarily legally correct or a reflection of good practice, the majority of decisions related to planning applications rely more on the interpretation of relevant land-use plans and policies, rather than the substantive results associated with AA screening. The influence of screening per se can be considered to be rather limited in its scope, focusing more on its procedural elements and having very limited stakeholder involvement.

This also applies to the carrying out of the detailed assessment. Where unclear impacts arise from the screening process, detailed studies are requested, which follow a set of specific Terms of Reference provided by the competent authority. Outcomes can be two-fold: (i) impacts are not considered to be of a significant nature or can be mitigated through the implementation of appropriate measures for the project to be considered further, or (ii) if impacts are significant and no mitigation measures can reduce or avoid such impacts, the project should be recommended for a refusal.

The conclusions of both the screening phase and those related to the outcomes of the detailed studies (carried out when impacts are considered unclear) are then referred to the permitting authority, which ostensibly considers this information when preparing its own report prior to presenting its position to the decision-making body.

Highlighting the importance of the assessment carried out in relation to Habitats Regulations cannot be stressed enough. With the plurality of stakeholders involved, including developers, regulatory authorities, environmental consultants, environmental NGOs and the public, seeing that these assessments are carried out effectively, proportionately and in a timely manner would ensure that. Ideally. all interests are taken into consideration, particularly when such assessments are legally binding over a decision. As mentioned earlier, whilst noting that all the necessary steps in the process are carried out, the actual influence of these outcomes onto the final decision is a discussion on its own merit. In recent years, there also has been a noticeable rise in the number of appeals against planning decisions, with Habitats Assessments often being the bone of contention – with the appellants highlighting bad implementation or lack of proper assessment of all impacts, a testament that implementation of such assessments is still given due importance. Capacity building, including training and professional development of staff involved in HRA, together with the publication (to note that there is no formal guidance document on the implementation of AA in Malta) of appropriate guidance documents may help in addressing such challenges.

Do you make effective use of ALL of IEMA's IA member resources?

IEMA's website contains a treasure trove of IA-related content, as well as information about IEMA's volunteer network groups, blogs, webinars and policy. But not everyone makes the most of this free member content, including:

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- Recordings of past webinars, with over 24 hours' worth of IA content
- IA guidance and advice: such as the recent guides on Land and Soils, GHGs, and Health in EIA
- The Proportionate EIA Strategy
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- Individual and organisational recognition specific to EIA, through the EIA Register and EIA Quality Mark schemes respectively.
- Opportunities to get involved with:
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    - IA Network and Working Groups
    - Geographic/Regional Groups

Summary

I would like to thank of all our contributors for taking valuable time out to pause, think and share their thoughts and experience with us.

The four 'calls' listed in the article from Emma Hawthorne of the OEP in particular chime with the work IEMA continues to do, particularly in responses to government consultations. HRA, as with EIA and SEA, needs competent experts, good data and evidence and frameworks within which previous practice informs learning and development. The earlier an assessment is started (i.e., concept, feasibility and site selection), the better the mitigation hierarchy can be implemented.

It's clear that the process of Habitats Regulations Assessment provides robust legal protection of our most important sites. The need for a scientific approach to providing evidence and managing change is increasingly important. We have seen that development can adapt to providing continued protection for designated sites – even when impacts come from diverse sources or when seemingly impossible to mitigate. We clearly have a strong foundation on which to build improvements, this is really the nub of impact assessment and why we all practice.

Acknowledgements

Ursula Stevenson has acted as the Guest Editor for this edition of the new IA Outlook Journal. We recognise and appreciate her contribution.

We also offer thanks to the series editors and reviewer of this edition: Rufus Howard. We would like to thank the authors of the articles in this seventeenth edition of the Impact Assessment Outlook Journal:

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IEMA's EIA Quality Mark: A scheme operated by the Institute allowing organisations (both developers and consultancies) that lead the coordination of statutory EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed. Founded in 2011, the EIA Quality Mark is a voluntary scheme, with organisations free to choose whether they are ready to operate to its seven EIA Commitments: EIA Management; EIA Team Capabilities; EIA Regulatory Compliance; EIA Context & Influence; EIA Content; EIA Presentation; and Improving EIA Practice.

Habitat Regulations Assessment

This seventeenth edition of the Impact Assessment Outlook Journal provides a series of thought pieces on the consideration of what makes for effective engagement in Impact Assessment. In this edition, the Guest Editor (Ursula Stevenson) has selected seven articles produced by IEMA professionals and EIA experts. The result is a valuable, yet quick, read across some of the different aspects of UK and international practice, exploring Habitats Regulations Assessment, its strengths, issues, and potential futures.

About the Guest Editor: Ursula Stevenson,

MIEMA CEnv REIA

Ursula Stevenson has over 20 years' experience in impact assessment. Having previously worked at WSP, she currently works as both a contractor for Binnies and as Director at Tresor Consulting, which she set up to provide bespoke environmental and sustainability services. She currently sits on IEMA's IA Steering Group and Full Member Assessment Group. Ursula also volunteers time as Chair of a local conservation charity.

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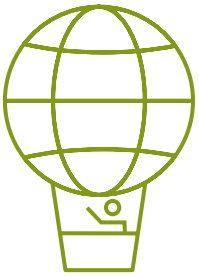

IEMA +44 (0)1522 540069 | info@iema.net | iema.net