

## ARTICLES

# The Use of Scientific Evidence in Precautionary Decision-Making in EU Environmental Law

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### Abstract

*Precautionary decision-making forms a central element of European Union environmental law. The precautionary approach is premised on the use of scientific evidence. Through its interpretation of the principle, the Court of Justice of the European Union (CJEU) has read into nature conservation legislation, scientific evidentiary requirements. In its decisions on the Birds and Habitats Directives, the CJEU has placed great weight on the use of scientific data. It also emphasizes the role scientific evidence plays in ensuring the conservation objectives of the Directives are met. In an often opaque and complex approach to synthesizing scientific evidence at the pre-legislative stage, the CJEU is assuming a clarification and purposive role in its interpretation of legislation. The CJEU is indicating in clear terms the importance of scientific evidence. The decisions of the court are informing the application and interpretation of environmental law, and in particular, nature legislation.*

**Keywords:** Science, evidence, precautionary principle, nature conservation, environmental law.

## A Introduction

The Better Regulation initiative is founded on evidence-informed policy.<sup>1</sup> Reliable evidence is key.<sup>2</sup> What evidence means varies depending on the context in which it

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1 European Commission, *Communication from the Commission to the European Parliament and Council, Joining forces to make better laws*, 2021, available at [https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how\\_en](https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en), p. 2.

2 *Ibid.*, pp. 3 and 20.

is being considered. Evidence will be informed by what we want to know.<sup>3</sup> From a legal viewpoint, evidence is most commonly used to establish a factual claim.<sup>4</sup> In science, evidence may be viewed as a knowledge claim backed up by a recognized scientific procedure or methodology.<sup>5</sup>

When developing and making decisions in environmental law, evidence largely consists of scientific data. Science is an intrinsic part of environmental law.<sup>6</sup> Due to the complex transboundary nature of environmental problems, environmental law adopts a top-down technocratic approach to governance.<sup>7</sup> Science is not the only factor that feeds into environmental decision-making, however. The term ‘evidence-based policy’ has progressed to evidence-informed policy.<sup>8</sup> This reflects the need for a broader evidence base, mirroring the requirements of specific policy areas.<sup>9</sup> In environmental law, public participation, social, cultural and economic criteria are relevant to consider in addition to science.<sup>10</sup> Science informs our technical and factual understanding of environmental problems, while social, cultural and economic factors inform our interaction with and reaction to environmental problems.

This article will focus primarily on science as an evidentiary basis for informing the creation of and implementation of environmental law. The use of science will be viewed through the lens of precautionary decision-making, a central aspect of European Union (EU) environmental law.<sup>11</sup> Sections B and C of the article will outline the role science plays in precautionary decision-making. Examples of precautionary decision-making at the judicial level will be evaluated in Section D. The role and approach of the Court of Justice of the European Union (CJEU)<sup>12</sup> is

3 Science Advice for Policy by European Academies (SAPEA), *Making Sense of Science for Policy under Conditions of Complexity and Uncertainty* (SAPEA 2019), p. 41. The EU Better Regulation Guidelines define ‘evidence’ in a broad manner referring to multiple sources of data, information and knowledge. *Commission Staff Working Document, Better Regulation Guidelines SWD(2021) 305 final*, available at [https://ec.europa.eu/info/sites/default/files/swd2021\\_305\\_en.pdf](https://ec.europa.eu/info/sites/default/files/swd2021_305_en.pdf).

4 Hock Lai Ho, ‘The Legal Concept of Evidence’ in Edward N. Zalta (ed.), *The Stanford Encyclopaedia of Philosophy* (Winter 2021 Edition), available at <https://plato.stanford.edu/entries/evidence-legal/>.

5 See for example Paul Cairney, *The Politics of Evidence-based Policy Making* (Palgrave Macmillan 2016), p. 3.

6 John McEldowney & Sharron McEldowney, ‘Science and Environmental Law: Collaboration across the Double Helix’ (2011) 13(3) *Environmental Law Review* 169.

7 Esther Turnhout, Jelle Behagel, Francesca Ferranti & Raoul Beunen, ‘The Construction of Legitimacy in European Nature Policy: Expertise and Participation in the Service of Cost-effectiveness’ (2015) 24 *Environmental Politics* 461.

8 Shelley Bowen & Anthony B. Zwi, ‘Pathways to “Evidence-Informed” Policy and Practice: A Framework for Action’ (2005) 2(7) *PLoS Medicine* 600.

9 *Ibid.*

10 See for example Art. 2(3), *Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora* (OJ L 206, 22 July 1992, p. 7).

11 This article will not focus on the detail of the precautionary principle nor discuss the greater scheme of how it is applied at a judicial level. For more information on this area, see for example Nicolas de Sadeleer, ‘The Precautionary Principle’, *Environmental Principles: From Political Slogans to Legal Rules* (Oxford University Press 2002); Giulia Claudia Leonelli, ‘Judicial Review of Compliance with the Precautionary Principle from Paraquat to Blaise: “Quantitative Thresholds”, Risk Assessment, and the Gap Between Regulation and Regulatory Implementation’ (2021) 22 *German Law Journal* 184.

12 Hereinafter referred to as the CJEU or the Court.

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increasingly being informed by scientific evidence. The interpretation of the CJEU, in turn, informs legislation. The relationship between science and legislative interpretation is particularly evident in nature conservation legislation. The approach of the Court in selected decisions concerning the Habitats Directive<sup>13</sup> and Birds Directive<sup>14</sup> will be analysed. Section E will then assess the broader implications of the interpretation and application of scientific evidence by the judiciary in environmental law.

## B Uncertain Evidence

Scientific evidence is recognized as a cornerstone of Better Regulation.<sup>15</sup> Science is required to inform the legislative and regulatory process.<sup>16</sup> Scientific data, however, do not translate readily into a form that can be used in policymaking.<sup>17</sup> There are similarities between science and policy – both are results of social practice and conform to a standardized set of rules and, as such are compatible.<sup>18</sup> However, there are structural limitations.<sup>19</sup> Scientific data are complex, uncertain and ambiguous.<sup>20</sup> In an open system such as the environment, which is based on interactions between species and within different natural systems, the complexity increases.<sup>21</sup>

Complexity and uncertainty are common features of the science that feeds into environmental decision-making, and so are a common feature of environmental law. Scientific uncertainty is a defining factor of environmental law.<sup>22</sup> Uncertainty cannot be eliminated by conducting further research. As science evolves, it may

13 *Directive 92/43/EEC* (n 10).

14 *Directive 79/409/EEC on the conservation of wild birds* (OJ L 103, 25 April 1979, pp. 1-18) repealed and replaced by *Directive 2009/147/EC on the conservation of wild birds* (OJ L 20, 26 January 2010, pp. 7-25). An analysis of all decisions relating to the interpretation of scientific uncertainty and scientific evidence by the Court in the area of nature conservation legislation is beyond the scope of this article and so the focus will be on selected key decisions.

15 European Commission (n 1), p. 3.

16 Andrew Stirling, 'On "Precautionary and Science Based" Approaches to Risk Assessment and Environmental Appraisal' in *On Science and Precaution in the Management of Technological Risk, Volume II, Case Studies* (An ESTO Project Report Prepared for the European Commission – JRC Institute Prospective Technological Studies Seville. Edited by Andrew Stirling (SPRU University of Sussex). Case studies conducted by Ortwin Renn, Andreas Klinke (CTA, Stuttgart); Andrew Stirling (SPRU, Sussex); Arie Rip (CSS, Twente); Ahti Salo (HUT, Helsinki) (2001).

17 It is not proposed to discuss the science-policy interface. For more detail on this area, see for example Sheila Jasanoff, *The Fifth Branch: Science Advisers as Policymakers* (Harvard University Press 1994); SAPEA (n 3).

18 Katalin Sulyok, *Science and Judicial Reasoning: The Legitimacy of International Environmental Adjudication (Cambridge Studies on Environment, Energy and Natural Resources Governance)* (Cambridge University Press 2020), p. 28.

19 Bruce Ballantine, 'Enhancing the Role of Science in the Decision-Making of the European Union. EPC Working Paper No.17' (2005); Lorna Schrefler & Jacques Pelkmans, 'Better Use of Science for Better EU Regulation' (2014) 3 *European Journal of Risk Regulation* 314.

20 SAPEA (n 3), p. 27.

21 Elizabeth Fisher, *Risk Regulation and Administrative Constitutionalism* (Hart Publishing 2007), p. 7.

22 Sulyok (n 18), p. 37.

answer questions and fill in gaps, but equally it raises new questions. Uncertainty must be managed and assimilated in order to use scientific data to advance policy and legislative decision-making.

The precautionary principle is just one of a myriad of methods designed to incorporate scientific evidence into policy and law.<sup>23</sup> The principle attempts to provide a methodology for dealing with scientific uncertainty in environmental decision-making. It provides an avenue for scientists to transform scientific uncertainty into data that can be used in policymaking and legislation.<sup>24</sup> The principle is a key factor in the Better Regulation toolbox, forming part of the risk assessment procedure. It is invoked when a potential for serious harm is identified, but there is scientific uncertainty about the magnitude of the harm.<sup>25</sup>

### C Scientific Evidence in Environmental Decision-Making

The precautionary principle was introduced by the Maastricht Treaty into Article 174, now Article 191(2) of the Treaty on the Functioning of the European Union.<sup>26</sup> It is one of the foundations of EU environmental policy, supporting the aim of achieving a high level of environmental protection.<sup>27</sup> All EU environmental legislation is based on the principle.<sup>28</sup>

The precautionary principle is an essential feature of ‘science-based’ regulation.<sup>29</sup> Precautionary decisions are premised on a scientific foundation.

In the wake of the resignation of the Santer Commission and in response to declining public confidence in EU regulatory decisions,<sup>30</sup> the EU Commission drafted a communication paper on the precautionary principle (the

23 SAPEA (n 3), p. 44. Other examples include integrated assessment or the consensus approach, which is employed by the IPCC.

24 de Sadeleer (n 11).

25 ‘Better regulation’ toolbox – November 2021 edition. Available at [https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox\\_en](https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en), p. 99, Tool 14.

26 Art. 191(2), *Treaty on the Functioning of the European Union* (OJ C 202, 7 June 2016, pp. 1-388). The principle was included in the text along with principles such as prevention, damage is to be rectified at source and the polluter pays.

27 See for example, Case C 217/19 *European Commission v. Republic of Finland* EU:C:2020:291, [2020], para. 91 and the case-law cited therein.

28 See for example, Commission Notice, *Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Arts. 6(3) and (4) of the Habitats Directive 92/43/EEC* (2021/C 437/01), para. 2.2.

29 Stirling (n 16).

30 Due to issues such as the Beef Hormones Dispute. For a detailed discussion of this area, see Elen Stokes, ‘Liberalising the Threshold of Precaution – Cockle Fishing, the Habitats Directive, and Evidence of a New Understanding of “Scientific Uncertainty”’ (2005) 1 *Environmental Law Review* 206.

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Communication).<sup>31</sup> The Communication was drafted in order to give substance and clarity to the application of the principle.<sup>32</sup>

The Communication placed emphasis on the central role that science plays. The precautionary process starts with a scientific evaluation:

The implementation of an approach based on the precautionary principle should start with a scientific evaluation, as complete as possible, and where possible, identifying at each stage the degree of scientific uncertainty.<sup>33</sup>

Scientific evidence supports the legitimacy of a precautionary decision, which can be judged on a factual basis.<sup>34</sup>

While science has been given a central role in the application of the principle, equally, the evolution of the principle has influenced the role of science in EU decision-making.<sup>35</sup> The role attributed to science in precautionary decision-making is most clearly seen in the decisions of the CJEU.

While the CJEU is bound by the separation of powers,<sup>36</sup> there is a spectrum within which the judiciary can engage in an analysis of scientific data. The Court is not required to determine whether scientific evidence is correct; however, it is required to determine whether the evidence presented is supported by coherent reasoning and has a reputable scientific basis,<sup>37</sup> having regard to its role in precautionary decision-making.

One of the areas where the Court has engaged in-depth in its scrutiny and assessment of the role of scientific evidence is in nature conservation legislation. The Court has interpreted the scientific element of the Habitats Directive and Birds Directive in an exacting manner. It has emphasized and elaborated on the role scientific evidence plays in ensuring compliance with obligations under the Directives, and as a means of achieving the aims of the Directives.

## D Reading Science into Nature Conservation Legislation

The science-informed approach of the CJEU towards nature conservation was initiated in the Birds Directive, the oldest piece of EU environmental legislation. In two early seminal cases, the Court linked the conservation of wild bird habitats to

31 European Commission, *Communication from the Commission on the precautionary principle*, Brussels, 2 February 2000, COM(2000) 1 final.

32 Ragnar Lofstedt, 'The Precautionary Principle in the EU: Why a Formal Review is Long Overdue' (2014) 16 *Risk Management* 137.

33 *Communication from the Commission on the precautionary principle* (n 31), pp. 3 and 16.

34 Fisher (n 21), p. 228.

35 Ballantine (n 19).

36 See for example Laura Burgers, 'Should Judges Make Climate Change Law?' (2020) 9 *Transnational Environmental Law* 55.

37 Sulyok (n 18), p. 197.

a scientific evidentiary basis.<sup>38</sup> The Court considered that the only criteria that can be used when designating and defining a special area of protection (SPA) are ecological requirements, in particular ornithological criteria.<sup>39</sup> All other considerations, including economic criteria, are not to be taken into account. Ornithological criteria are determined by the directive and are based on an ecological assessment of a site, establishing the presence of protected birds and the designation of a habitat as a protected area.<sup>40</sup> The ecological assessment provides the objective scientific evidence establishing the foundation for the designation of a site as an SPA. A scientific assessment is key to the application of the provisions of the Directive.

The science-focused approach to legislative interpretation has been replicated and expanded on by the Court in subsequent judgements on both the Birds and Habitats Directives.

### *I Article 6 of the Habitats Directive and Scientific Evidence*

The central aim of the Habitats Directive is to “contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora” in the EU.<sup>41</sup> This is to be achieved by means of the Natura 2000 network of special areas of conservation, which will enable habitats to be maintained or restored at a favourable conservation status.<sup>42</sup>

The Habitats Directive does not refer directly to the precautionary principle, reflecting perhaps that the principle was only incorporated into the TFEU in 1992,<sup>43</sup> the same year that the Directive was adopted. The application of the principle, however, is implicit in the Directive.<sup>44</sup> This is particularly the case for the application of Article 6 of the Directive, which sets out the framework for site conservation and protection.<sup>45</sup> More specifically, Articles 6(1) and 6(2) establish the regime for site protection, while Articles 6(3) and 6(4) set out a series of

38 C-355/90 *Commission of the European Communities v. Kingdom of Spain* EU:C:1993:331, [1993]; Case C-44/95 *Regina v. Secretary of State for the Environment, ex parte: Royal Society for the Protection of Birds* EU:C:1996:297, [1996]. For a discussion on the ‘science-based’ approach of the Court to site protection under the Habitats Directive see Emma Lees, ‘Allocation of Decision-Making Power under the Habitats Directive’ (2016) 28 *Journal of Environmental Law* 191.

39 *Commission of the European Communities v. Kingdom of Spain* (n 38), paras. 26-27; *Regina v. Secretary of State for the Environment, ex parte: Royal Society for the Protection of Birds* (n 38), paras. 25-26.

40 C-355/90 *Commission of the European Communities v. Kingdom of Spain* (n 38), para. 28.

41 *Directive 92/43/EEC* (n 10), Art. 2(1); *Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Arts. 6(3) and (4) of the Habitats Directive 92/43/EEC*, November 2001, pp. 8-9; see also cases such as Case C-127/02 *Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v. Staatssecretaris van Landbouw, Natuurbeheer en Visserij* EU:C:2004:482 [2004], para. 44 (Waddenzee).

42 *Directive 92/43/EEC* (n 10), Art. 3(1).

43 The Maastricht Treaty incorporated the principle into the then Treaty of Rome, now the TFEU.

44 *Assessment of plans and projects significantly affecting Natura 2000 sites* (n 41), p. 11; Waddenzee (n 41), para. 44.

45 *Directive 92/43/EEC* (n 10), Art. 6; *Assessment of plans and projects significantly affecting Natura 2000 sites* (n 41), p. 9; Waddenzee (n 41), para. 58, which specifically referred to the second sentence of Art. 6(3). Arts. 6(1) and 6(2) focus on positive proactive intervention and a preventative approach to habitat deterioration respectively.

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procedural and substantive safeguards in respect of plans and projects likely to have a significant effect on a Natura 2000 site. Any proposed development must be evaluated in accordance with the procedure laid down in Article 6.

In its interpretation of Article 6, the Court has used scientific evidence to underpin the requirements of site conservation, site protection and the broader aims of the Directive. The Court adopts a science-based approach to the protection of sites.<sup>46</sup> The approach adopted by the Court has been criticized on a number of levels. It is viewed as applying the precautionary principle in advance of the scientific evaluation<sup>47</sup> or as prioritizing scientific evidence over social and economic values.<sup>48</sup> More precisely perhaps, it is an example of the Court adopting a restrictive approach to environmental provisions,<sup>49</sup> or a reflection of the wording of the article, which takes a strict interpretation of the precautionary principle, turning it into a legal rule.<sup>50</sup> The approach of the Court could also be viewed as using evidence to ensure the better implementation of legislation, in light of its objectives.

The first guidance document on the application of Article 6 was published in 2000.<sup>51</sup> Up until this time there was little guidance on the methodology of how to apply Article 6, and in particular Article 6(3). Even after this time, the specific approach to and methodology supporting the application of Article 6(3) was debated.<sup>52</sup> The CJEU was tasked with the interpretation of the Directive in the case of divergent views.<sup>53</sup> In the face of such confusion, several preliminary references on the application of the Article were referred to the Court.<sup>54</sup>

Early Commission guidance interpreted the application of Article 6 in terms of scientific evidence. In order to determine whether a plan or project is likely to have a significant effect, the justification enabling the development must stand up to scientific and expert scrutiny.<sup>55</sup> Whether a development is likely to have a significant effect is to be investigated in line with the precautionary principle and so also have a scientific basis to its interpretation.<sup>56</sup> The Court has followed the scientific

46 Lees (n 38).

47 Stokes (n 30).

48 Lees (n 38).

49 Christoph Sobotta, 'Recent Applications of the Precautionary Principle in the Jurisprudence of the CJEU – A New Yardstick in EU Environmental Decision Making?' (2021) 21 ERA Forum 723.

50 Jonathan Verschuuren, 'Shellfish for Fishermen or for Birds – Article 6 Habitats Directive and the Precautionary Principle' (2005) 17 Journal of Environmental Law 265. This is particularly the case for Article 6(3) of the Habitats Directive.

51 European Communities, *Managing Natura 2000 sites, the provisions of Art. 6 of the 'Habitats' Directive 92/43/CEE* (2000).

52 Verschuuren (n 50). In a conference paper from 1997, the vagueness of the wording of Art. 6 was highlighted, noting that it was vulnerable to variable interpretation in different Member States – Karen Mitchell, European Seminar on Implementing the Habitats Directive in Marine and Coastal Areas: Background Paper, Implementing the Habitats Directive in Marine and Coastal Areas, Proceedings of a Seminar Held at Morecambe Bay, England 22-24 June 1997 (1997).

53 European Communities, *Nature and Biodiversity Cases. Ruling of the European Court of Justice* (2006), p. 4.

54 Preliminary references on the application and interpretation of the article are still being referred on a regular basis to the CJEU.

55 *Assessment of plans and projects significantly affecting Natura 2000 sites* (n 41), p. 33.

56 *Ibid.*, p. 34.

approach to the interpretation of the Directive and established an extensive line of case law understanding the application of Article 6, and the directive as a whole, in terms of scientific evidence.

*Waddenzee*<sup>57</sup> is the leading case on the Habitats Directive and the first to set the strict interpretative standard for Article 6. The Court of Justice construed the aim of the first sentence of Article 6(3), the trigger requiring an appropriate assessment (AA), in terms of the aim of the Directive itself, adopting a teleological or purposive approach to legislative interpretation.<sup>58</sup> The court linked the trigger for an AA to the precautionary principle and the need to carry out a scientific assessment, based on the best scientific knowledge in the field.<sup>59</sup> This would establish whether the development will have a significant effect on a protected site.<sup>60</sup>

The court reasoned that it was clear that the second sentence of Article 6(3), the conclusion that the national authority reaches after taking account of the AA, integrated the precautionary principle. Based on this, an activity can only be authorized if there is certainty that it will not adversely affect the integrity of the site, or in other words, where there is no reasonable scientific doubt that the development will not negatively impact on the site.<sup>61</sup> Such an approach means that whenever there is scientific uncertainty, the project cannot proceed. This approach can stifle the prospect of development in and around Natura 2000 sites.<sup>62</sup> It illustrates, however, the emphasis the court places on scientific evidence. It has been pointed out that, from a risk assessment point of view, this is an attempt to cater for theoretical risk via precautionary measures rather than relying on scientific prediction.<sup>63</sup> It is also evident, perhaps, of the importance the court places on the scientific evidence, removing the need for a value judgement, and entrusting the decision to the scientific data.

In *Sweetman*,<sup>64</sup> the Court of Justice elaborated further on the application of Article 6. In particular, it was asked to clarify the meaning of the phrase “adversely affect the integrity of the site”, an element of the second sentence of Article 6(3) and the threshold by which permission for a development is measured.<sup>65</sup> The court

57 *Waddenzee* (n 41).

58 See for example Nial Fennelly, ‘Legal Interpretation at the European Court of Justice’ (1997) 20 *Fordham International Law Journal* 656; Emma Lees, *Interpreting Environmental Offences: The Need for Certainty* (Hart 2015).

59 *Waddenzee* (n 41), para. 61.

60 *Ibid.*, paras. 39-45.

61 *Ibid.*, para. 61.

62 Hendrik Schoukens & An Cliquet, ‘Mitigation and Compensation under EU Nature Conservation Law in the Flemish Region: Beyond the Deadlock for Development Projects?’ (2014) 10 *Utrecht Law Review* 194.

63 Stokes (n 30).

64 Case C-258/11 *Peter Sweetman and Others v. An Bord Pleanála* EU:C:2013:220, [2013].

65 *Directive 92/43/EEC* (n 10), Art. 6(3) second sentence, “In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”



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construed the article again in light of the conservation objectives of the Directive,<sup>66</sup> to enable habitats to be maintained or restored at a favourable conservation status.<sup>67</sup> The Advocate General reasoned that the aim of the Directive would have no practical effect if Article 6 was not followed.<sup>68</sup> The court considered that authorization can only be granted for a development if the competent authority is certain that there will be no lasting adverse effects on the integrity of the site.<sup>69</sup> Explaining “no lasting adverse effects”, the court gave the example of an intervention that would bring about the partial or irreparable destruction of a habitat.<sup>70</sup> The best scientific knowledge in the field is to be used to inform the opinion of the competent authority and no reasonable scientific doubt can remain as to the absence of negative effects.<sup>71</sup> The Court of Justice again linked the application of the Article to the evidence presented by a scientific assessment. While the competent authority is to make the final decision in relation to the development, the rationale for a decision is to be based on science alone. The court is placing evidence at the centre of the application of the provision. This relegates other considerations such as social and economic values to a secondary role.<sup>72</sup>

There is a gap in the reasoning of the court in this case, however. On the one hand, the court places scientific evidence at the centre of the decision-making process, but neglects to consider the meaning of the phrase ‘integrity’ in scientific terms.<sup>73</sup> The court held that a development that leads to the lasting and irreparable loss of a whole or part of a priority habitat (the conservation of which was the objective of designating the site as a protected area, and so whose conservation is the object of the Directive) will adversely affect the integrity of the site.<sup>74</sup> If a development is liable to prevent the lasting preservation of the constitutive characteristics of the site, it will adversely affect the integrity of the site.<sup>75</sup> This means that, irrespective of what the scientific evidence presents, if a development will wholly or partially destroy a site, its integrity is considered to be adversely affected and so the development is not permitted under Article 6(3). It is possible, in scientific terms, to assess the health or integrity of an ecosystem or habitat on the basis of biological, chemical or functional indicators.<sup>76</sup> The Court of Justice however did not have regard to such evidence in its decision. It placed science at

66 *Peter Sweetman and Others v. An Bord Pleanála* (n 64), para. 32.

67 *Directive 92/43/EEC* (n 10), Art. 3(1); Case C - 258/11 Opinion of Advocate General Sharpston, *Peter Sweetman and Others v. An Bord Pleanála* EU:C:2012:743, [2013], para. 40.

68 Case C-258/11 Opinion of Advocate General Sharpston, *Peter Sweetman and Others v. An Bord Pleanála* (n 67), para. 41.

69 Case C-258/11 *Peter Sweetman and Others v. An Bord Pleanála* (n 64), para. 40.

70 *Ibid.*, para. 43.

71 *Ibid.*, para. 40.

72 Lees (n 38).

73 Owen McIntyre & John O’Halloran, ‘The Gulf between Legal and Scientific Conceptions of Ecological “Integrity.” The Need for a Shared Understanding in Regulatory Policymaking’ in Gerard Mullally, Colin Sage & Edmond Byrne (eds), *Transdisciplinary Perspectives on Transitions to Sustainability* (Routledge 2016).

74 *Peter Sweetman and Others v. An Bord Pleanála* (n 64), para. 46.

75 *Ibid.*, para. 48.

76 McIntyre & O’Halloran (n 73).

the heart of the assessment, but used legislative tools to interpret the wording of the directive.<sup>77</sup> The methodological guidance on the application of Article 6 available at the time of the judgement provided a scientific step-by-step approach to assessing the integrity of a site.<sup>78</sup> While this guidance is not binding, it is arguable that the court should have had regard to existing and recommended scientific guidelines on establishing site integrity.

## II *Species Protection under the Habitats Directive and the Strict Need for Scientific Evidence*

The science-based approach of the CJEU is not only limited to the application of Article 6 of the Habitats Directive, and the protection of habitats, but also applied by the Court in the protection of species. Species are protected under Articles 12-15 of the Habitats Directive. Article 16 permits a derogation from the strict protection provisions in certain specified circumstances. Its application is interpreted restrictively. In *Tapiola*,<sup>79</sup> the Court of Justice considered the lawfulness of a derogation granted by the Finnish authorities permitting the hunting of wolves, a protected species. The court referred to the comments of the Advocate General and noted that it was incumbent on the competent authority to “support, on the basis of rigorous scientific data” that the derogation measures would have a positive effect on the conservation status of the wolf population.<sup>80</sup> Article 16(1) requires a statement of reasons as to why there is no satisfactory alternative to the derogation. The court reasoned that the competent national authority must take into account the “best relevant scientific and technical evidence” in establishing the statement of reasons and the fact that there is no satisfactory alternative.<sup>81</sup> The court also elaborated on the link between a derogation and the need to maintain a favourable conservation status. The court specified that any derogation must contain an “assessment of the conservation status of the population”; and the “impact that the envisaged derogation is capable of having on it” at a local, territorial, biogeographical and, if relevant, cross-border level.<sup>82</sup> This also must be based on scientific data.<sup>83</sup> The court again is elaborating on the protection requirements of nature legislation, on this occasion, applying the requirement for an evidentiary basis to the protection of species. The relevant authority must establish, on the basis of scientific evidence, the foundation on which to grant a derogation, ensuring that any derogation is not detrimental to the maintenance of the concerned population.

77 *Ibid.*

78 *Assessment of plans and projects significantly affecting Natura 2000 sites* (n 41), pp. 29-30.

79 Case C-674/17 *Luonnonsuojeluyhdistys Tapiola Pohjois-Savo – Kainuu ry v. Risto Mustonen and Others* EU:C:2019:851, [2019] (*Tapiola*).

80 *Ibid.*, para. 45.

81 *Ibid.*, para. 51.

82 *Ibid.*, para. 61.

83 *Ibid.*, para. 67.

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### III *Scientific Evidence Reinforcing the Objectives of the Birds Directive*

The approach of the Court to the protection of species under the Habitats Directive is mirrored in its recent decisions in respect of the Birds Directive. Both the Birds and Habitats Directives have a conservation objective and are considered to be interpreted in light of the precautionary principle.<sup>84</sup> As with the Habitats Directive, under the Birds Directive, Member States must take measures to maintain species populations.<sup>85</sup> In certain circumstances, such as in the interests of public safety, Member States may derogate from the protective measures.<sup>86</sup> A derogation must be assessed in light of the precautionary principle.<sup>87</sup> One such derogation permits, under strictly supervised conditions, the hunting of birds in ‘small numbers’.<sup>88</sup> The definition of ‘small numbers’ is not specified in the legislation; however, Commission guidance documents have given a definition based on data compiled by the ORNIS<sup>89</sup> committee.<sup>90</sup> The court had regard to this guidance in *Commission v. Finland*.<sup>91</sup> In this case, the Commission brought infringement proceedings against Finland for permitting the hunting of certain protected bird species. The court reasoned that although the Commission guidance was not binding, due to the scientific value of the opinion and, in this situation, the lack of contradictory evidence, it could be used as an objective basis for assessing the granting of the ‘small numbers’ derogation.<sup>92</sup> The court found, in this instance, that the hunting permitted under the derogation did not correspond with the scientific definition of ‘small numbers’ and so Finland failed to comply with its obligations under the Directive. The court conceded that the scientific evidence was not binding, yet still considered it central to the interpretation of the legislation. It applied the evidence in order to reinforce the strict protective requirements, and strict interpretation of derogation measures under the Directive.

This approach has been followed and expanded on in subsequent judgements. As a general rule, the court has specified that in order to justify derogation measures, evidence based on “well-established scientific knowledge” must be presented.<sup>93</sup> This wording is not in the Birds Directive. The court, in supporting its science-based approach to derogation under the Birds Directive, refers to the requirement for competent authorities to consult the best available scientific

84 See for example, *European Commission v. Republic of Finland* (n 27), para. 91. In addition, the close connection between the two directives is evident in site protection measures. Art. 7 Habitats Directive replaced Art. 4(4) Birds Directive with Arts. 6(2), 6(3) and 6(4) Habitats Directive in respect of developments likely to have a significant effect on a special area of protection under the Birds Directive.

85 Directive 2009/147/EC (n 14), Art. 2.

86 *Ibid.*, Art. 9.

87 *European Commission v. Republic of Finland* (n 27), para. 84 referring to *Tapiola* (n 79), paras. 66 and 69.

88 Directive 2009/147/EC (n 14), Art. 9(1)(c).

89 The Ornis Committee assists the Commission in the implementation of the Birds Directive.

90 *Second report on the application of Directive 79/409/EEC on the conservation of wild birds* (COM(93) 572 final of 24 November 1993).

91 Case C-344/03 *Commission of the European Communities v. Republic of Finland* EU:C:2005:770, [2005].

92 *Ibid.*, para. 54.

93 *European Commission v. Republic of Finland* (n 27), para. 70.

knowledge in granting derogation permits under the Habitats Directive.<sup>94</sup> By extension, the court applies those considerations to the derogation process under the Birds Directive.<sup>95</sup>

It is evident, from the examples given above,<sup>96</sup> that the CJEU has interpreted the application of the Habitats and Birds Directives by placing an emphasis on, and reading into the legislation, the need for a scientific evidentiary base. The most recent Commission guidance on the application of Article 6 of the Habitats Directive<sup>97</sup> has consolidated the rulings of the CJEU, along with experience in implementing the Directive, to create comprehensive methodological guidance on the application of the Article. This document focuses heavily on the scientific evidentiary base. Arguably, the approach of the Court has ensured a more effective implementation of the legislation. In addition, by basing its reasoning on scientific evidence and by using scientific evidence to support the implementation of the Directives, the CJEU is reinforcing the legitimacy of nature protection laws.<sup>98</sup>

The approach and role of the Court in ensuring evidence-informed regulation, however, is not without criticism. The next section will discuss some of the key issues that can arise as a result of the judicial interpretation of legislation, in particular, when such interpretation involves the construal of scientific evidence.

## E Consideration of the Judicial Interpretation of Scientific Evidence

### *I Expanding the Approach Beyond Nature Conservation Legislation*

The leading role adopted by the CJEU in elaborating on the use of evidence in the application of the Habitats and Birds Directives has not been replicated in other areas of environmental law.<sup>99</sup> The Plant Protection Regulation regulates the use of pesticides in the EU.<sup>100</sup> The Regulation is based on the precautionary principle.<sup>101</sup> The Regulation is explicit about the role of science in its application. The Regulation requires scientific data in order to justify decisions taken; it is used to approve or review the approval of a substance,<sup>102</sup> to justify why producer approval information is not complete,<sup>103</sup> as a foundation for assessment reports<sup>104</sup> and as a justification

94 *Ibid.*, para. 70 referring to Waddenzee (n 41), paras. 52 and 61 and Tapiola (n 79), para. 51.

95 *European Commission v. Republic of Finland* (n 27), para. 70.

96 There are many examples of the use of scientific evidence by the Courts in nature conservation legislation and in the broader area of environmental law; however, a more detailed examination is beyond the scope of this article.

97 Commission Notice (n 28), p. 3.

98 Andy Stirling & David Gee, 'Science, Precaution, and Practice' (2002) 117 *Public Health Reports*, The Precautionary Principle 521.

99 A broad approach to environmental law is taken in this context, referring to interconnected issues such as the protection of human, plant and animal health.

100 *Regulation (EC) No 1107/2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC* (OJ L 309).

101 *Ibid.*, Art. 1(4); Case C-499/18-P *Bayer CropScience AG and Bayer AG v. Commission* [2021] ECLI:EU:C:2021:367, paras. 79 & 115.

102 *Ibid.*, Arts. 4(1) and 29(1)(e); Art. 12(2) referring to EFSA's conclusion; Art. 21(1) .

103 *Regulation (EC) No 1107/2009*, Art. 7(1).

104 *Ibid.*, Art. 11(2).

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for refusing approval.<sup>105</sup> The approval evaluation is to be based on scientific principles, and it must be made with the benefit of expert advice.<sup>106</sup> While science forms an explicit key element of the Regulation, the CJEU has rarely elaborated on the scientific evidence base of the legislation. The assessment and regulation of plant protection products is a complex and often contentious area.<sup>107</sup> In interpreting the Regulation, the Court takes an expansive approach to evidence, acknowledging the evolving and hazardous nature of plant protection products and their active substances.<sup>108</sup> Broad discretion is granted to the EU institutions, especially in areas deemed to be complex and technical.<sup>109</sup> When reviewing the validity of decisions under the Plant Protection Regulation, the Court carries out a limited review, focusing on procedure rather than a review of the substance of the decision.<sup>110</sup> The Court does not engage with the evidentiary basis of a decision.

The wording of the Plant Protection Regulation with regard to precautionary measures, however, has scope to be interpreted in a manner similar to that adopted by the CJEU in its interpretation of the Habitats Directive.<sup>111</sup> The wording of Article 4(2) of the Regulation implies that the Commission may only approve an active substance if it is satisfied that there will be no harmful effects. If a strict reading of this provision was applied, and so a strict application of precaution, it would require an authorization to be refused if there was reasonable scientific doubt that there would be no negative effects.<sup>112</sup> This approach would be similar to the approach adopted by the CJEU in its interpretation of the Habitats Directive. If the CJEU followed this line of reasoning, it would give scope to the judiciary to elaborate on the scientific evidentiary base of the Plant Pesticide Regulation. This would have implications for the type and extent of scientific evidence required in order to demonstrate the safety of an active substance.

## II Judicial Vulnerability

It is questionable whether it should be left to the CJEU to interpret legislation and develop the evidentiary requirements for the application of such legislation. The Court should have a clarification role in areas of legislative ambiguity and not be

105 *Ibid.*, Art. 36(3).

106 *Ibid.*, Ann. II.

107 See for example Alessandra Donati, 'The Glyphosate Saga, a Further but Not a Final Step: The CJEU Confirms the Validity of the Regulation on Plant Protection Products in Light of the Precautionary Principle' (2020) 11 *European Journal of Risk Regulation* 148.

108 See for example Case C-616/17 *Criminal proceedings against Mathieu Blaise and Others* EU:C:2019:800, [2019]; Sabrina Rottger-Wirtz, 'Case C-616/17 Blaise and Others: The Precautionary Principle and Its Role in Judicial Review – Glyphosate and the Regulatory Framework for Pesticides' (2020) 27 *Maastricht Journal of European and Comparative Law* 529.

109 See for example Case C-241/01 *Opinion of AG Mischo, National Farmers' Union and Secrétariat général du gouvernement* EU:C:2002:415, [2002], para. 75; Case T-392/02 *Solvay Pharmaceuticals v. Council* ECLI:EU:T:2003:277, [2003], para. 126; Ase Gornitzka & Ulf Sverdrup, 'Access of Experts: Information and EU Decision-making' (2011) 34 *West European Politics* 48.

110 Rottger-Wirtz (n 108).

111 Sobotta (n 49).

112 Regulation (EC) No 1107/2009 (n 100), Art. 4; Sobotta (n 49).

required to fill the gaps left by regulatory decision makers.<sup>113</sup> Adequate evidence should be incorporated into the pre-legislative stage in order for the law to be applied in a uniform and effective manner. The Court, however, is increasingly willing to look to the science underlying and supporting the decision-making process, especially in environmental law. This, perhaps, is leading to a ‘scientification’ of the Court.<sup>114</sup>

The shortcomings of relying on the interpretation of the Court are clear in *Sweetman*, where the Court did not have regard to the scientific element of the phrase ‘ecological integrity’. The Court is left in a difficult position. It is attempting to bring clarity to the scientific evidence to be used in the application of, in this case the Habitats Directive, but it is not always aware of the details of scientific research. In *Sweetman*, the court took a legal approach to interpreting the wording of the Directive.<sup>115</sup> A grammatical interpretation of legislation may be appropriate when the scientific detail is enshrined in a legal text;<sup>116</sup> however, this method is not as accurate when the science informs the application of a measure and is a step removed from the linguistics of the legislation.

The vulnerability of using this method was apparent in *Confédération Paysanne*, which concerned a preliminary reference querying whether novel mutagenesis techniques should be included in the definition of techniques giving rise to genetically modified organisms (GMOs), and so triggering the need for a scientific risk assessment.<sup>117</sup> The Advocate General looked in detail at the provisions of the queried directive<sup>118</sup> and analysed the definition and evolution of mutagenesis techniques.<sup>119</sup> He concluded that new mutagenesis techniques should be excluded from the definition as the directive was dynamic, and a precautionary approach cannot be used to rewrite the provisions of a legal text. It is used to interpret “uncertain notions or categories”.<sup>120</sup> However, the Court of Justice disagreed with the Advocate General and interpreted the directive as static, with the intention to exclude only established mutagenesis techniques with a proven track record of safety.<sup>121</sup> This decision demonstrates how interpreting scientific concepts through

113 Leonelli (n 11).

114 Damian Chalmers, Giorgio Monti & Gareth Davies, *European Union Law: Cases and Materials* (2nd, rev. ed.), (Cambridge University Press, 2010), p. 898; Ellen Vos, ‘EU Risk Regulation Reviewed by the European Courts’ in Marjolein van Asselt, Michelle Everson & Ellen Vos (eds), *Trade, Health and the Environment: The European Union Put to the Test* (Routledge, 2014).

115 McIntyre & O’Halloran (n 73). However, in Case C-344/03 *Commission of the European Communities v. Republic of Finland* (n 91), the Court was aware of and did have regard to scientific guidelines in the area, as evident by its reference to the data compiled by the ORNIS committee.

116 Sulyok (n 18), p. 350.

117 Case C-528/16 *Opinion of Advocate General Bobek, Confédération paysanne and Others v. Premier ministre and Ministre de l’agriculture, de l’agroalimentaire et de la forêt* EU:C:2018:20, [2018].

118 *Directive 2001/18/EC on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC*.

119 Case C-528/16 *Opinion of Advocate General Bobek* (n 117), see for example para. 84.

120 *Ibid.*, see for example para. 81. On this basis a new scientific risk assessment would not have been required for a GMO derived from new mutagenic techniques.

121 Case C-528/16 *Confédération paysanne and Others v. Premier ministre and Ministre de l’agriculture, de l’agroalimentaire et de la forêt* EU:C:2018:583, [2018], see for example paras. 41-51.

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an analysis of legislation can lead to a potentially subjective conclusion, open to multiple interpretations.

In order to guard against questions over the legitimacy of interpretation and of superficial evidentiary findings, the Court must engage with the scientific evidence at a deeper level.<sup>122</sup> It could be argued that this is beyond the remit and concern of the Court. The Court, however, cannot avoid adjudicating on evidentiary requirements. The Court was asked via a preliminary reference to interpret the meaning of 'integrity' in the Habitats Directive. Therefore, either the Court needs to be aware of scientific research in a particular area and deal with it in an adequate manner, or it needs to be given the tools to deal with such issues.

The more efficient alternative to relying on the judiciary to clarify scientific evidentiary requirements is for such requirements to be considered and incorporated at the pre-legislative stage. The manner in which scientific data find their way into environmental regulation varies greatly. There is a wealth of scientific advisory bodies and expert groups feeding into policymaking at the EU level. An analysis of such bodies is beyond the scope of this article; however, they include, *inter alia*, Commission expert groups,<sup>123</sup> Council committees, scientific agencies,<sup>124</sup> the Joint Research Centre<sup>125</sup> and the Science Advice Mechanism.<sup>126</sup> While there is an abundance of scientific information and research being carried out, there is no coherent approach to incorporating scientific evidence into legislation. There is no clear relationship between these advisory bodies.<sup>127</sup> There is no uniform method for the incorporation of science into EU regulation.<sup>128</sup> Further, the opinions and expertise that such bodies produce are not legally binding. In relation to expert agencies, the Court has confirmed that they are 'purely advisory bodies'.<sup>129</sup> Scientific advisory bodies may have scientific legitimacy but they do not have democratic legitimacy.

The Court has assumed the role of a scientific assessor and read in scientific evidentiary requirements to the legislation, creating a binding authority. In areas

122 Sulyok (n 18), p. 339.

123 There are currently 695 expert groups, with 55 expert groups led by Directorate General Environment, and a further 10 led by other DGs but having an environmental advisory role.

124 Two of the most established agencies are the European Environment Agency and European Food Safety Authority. The EEA produces knowledge on the state of the environment in Europe but does not set or enforce environmental policies. EFSA is a source of scientific advice and communication on risks associated with the food chain.

125 The Joint Research Centre consists of seven research institutes providing science and technology policy advice to the EU institutions.

126 SAM is composed of a Group of Chief Scientific Advisors, Science Advice for Policy by European Academies consortium (SAPEA) and the SAM secretariat provided by Directorate General for Research and Innovation in the European Commission. SAM was put in place to provide the Commission with high-quality, timely and independent scientific advice. This is to improve the interaction between policy demand and supply of scientific advice.

127 SAPEA (n 3), p. 110.

128 Ballantine (n 19).

129 Case T-70/99 *Alpharma Inc. v. Council of the European Union* EU:T:2002:210, [2002] ECR II-03495, para. 237.

of ambiguity, the CJEU is tasked with interpreting legislation.<sup>130</sup> In the case of the Habitats and Birds Directives, the Court has taken a strict approach and is setting the evidentiary standards for these Directives.

### *III Evidence-Informed Policy and Broader Policy Considerations*

This article focuses on the use of science as an evidentiary base, as interpreted by the CJEU. In environmental law, social, cultural and economic factors are also relevant criteria to consider. The Habitats Directive requires measures, taken under the Directive, to protect natural habitats and species. It also requires measures to take account of economic, social and cultural requirements.<sup>131</sup>

The cases reviewed focus primarily on scientific evidence as a means of evaluating impacts on natural habitats and species. The decisions do not refer to the interests of other key stakeholders.<sup>132</sup> In practical terms, the conclusion that a development cannot proceed unless there is no reasonable scientific doubt that there will be no adverse effects has the potential to restrict development on and adjacent to Natura 2000 sites. The approach of the Court places scientific and ecological considerations above economic and social factors. While this approach may be in keeping with the biodiversity objectives of the Directives, viewed from a developer and competent authority perspective, this approach may have the effect of stifling development and planning policy.

The approach of the court places the relationship between science and policy in focus. By placing an emphasis on scientific evidence in its interpretation of nature legislation, the CJEU is substantiating decisions on an objective and rational basis.<sup>133</sup> This reduces the need for a value judgement. The competent authority must be sure, on the basis of scientific evidence, that there is no reasonable doubt that there will be no adverse effect on a protected site. This approach is not in keeping with the ethos of precautionary decision-making, however. While a scientific evaluation is at the centre of the precautionary assessment, scientific results are not envisaged as being used as a justification for a decision.<sup>134</sup> The Communication on the precautionary principle apportions authority to scientists in the form of the scientific evaluation, and to the decision makers in the form of the risk management role and the decision on whether and how to act.<sup>135</sup> It is not envisaged that scientists should make policy decisions.

130 European Communities, *Nature and Biodiversity Cases. Ruling of the European Court of Justice* (2006), p. 4.

131 *Directive 92/43/EEC* (n 10), Arts. 2(2) and 2(3).

132 Lees (n 38). Art. 6(3) requires the opinion of the public to be obtained, if required. This was not dealt with in any great detail in the judgements reviewed and only mentioned as part of the legislative text rather than considering its relationship with habitats and species protection. See for example *Waddenzee* (n 41), para. 3 and *Peter Sweetman and Others v. An Bord Pleanála* (n 64), para. 7.

133 This approach may not achieve the desired effect, however, as the uncertainty of science does not always provide a rational basis for decision-making, Lees (n 38).

134 Case C-41/02 *Opinion of Mr Advocate General Maduro, Commission of the European Communities v. Kingdom of the Netherlands* EU:C:2004:520, [2004] ECR I-11375, para. 34 and footnote 55.

135 Alberto Alemanno, 'European Legal Integration: The New Italian Scholarship. The Shaping of European Risk Regulation by Community Courts' (2008) Jean Monnet Working Paper 18/08.



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The Court, in its interpretation of the Habitats and Birds Directives, is creating a situation whereby the relevant authorities are restricted in their assessment of risk. The scientific evaluation is so prescriptive that it is answering the risk management question. The decision-making power is being removed from the competent authorities. This may result in a situation whereby development objectives are not being met, resulting in a negative impact on economic, social and cultural requirements.

In a policy area that places conservation objectives above economic and social considerations, however, arguably this is the most pragmatic approach. It is possible for development to still proceed on the basis of introducing mitigation measures, measures intended to avoid or reduce the harmful effects of a development, at the second stage of the AA.<sup>136</sup> Alternatively, a derogation from Article 6(3) may be applied for under Article 6(4), once certain conditions are met, including demonstrating 'reasons of overriding public interest'.<sup>137</sup> The 2016 Fitness Check carried out on the Birds and Habitats Directives also indicates that while primacy is given to conservation objectives, there is no clear evidence that the Directives impact negatively on development goals in Member States.<sup>138</sup> This indicates that the approach of the Court is not having a detrimental effect on planning and development objectives at a local level.

## F Conclusion

From the assessment of the cases above, it is apparent that the CJEU, in its interpretation of precautionary decision-making, has elaborated on the requirements of the Habitats and Birds Directives by reading into the text, a scientific evidentiary requirement. The Court has clarified the application of key elements of the legislation by grounding its approach in scientific evidence. Such an approach ensures that the conservation objectives of the Directives are prioritized, and there is better implementation of nature conservation legislation.

There is a danger that adopting this methodology places scientific evidence at the centre of the decision-making process, relegating the policymakers and competent authorities to a secondary role. The approach also prioritizes ecological criteria over economic considerations. In an area such as nature conservation that encompasses strict protection requirements, this perhaps was the intention of the legislature, as interpreted by the CJEU in the early cases on the Birds Directive.<sup>139</sup>

In the complex and often opaque process by which scientific evidence is synthesized into law, it is difficult to establish the original intention of the legislature. As neither the Habitats Directive nor the Birds Directive was preceded

136 See for example, Case C-323/17 *People Over Wind, Peter Sweetman v. Coillte Teoranta* EU:C:2018:244, [2018].

137 Directive 92/43/EEC (n 10), Art. 6(4).

138 *Evaluation Study to support the Fitness Check of the Birds and Habitats Directives Final Report March 2016*, p. 354.

139 See for example *Commission of the European Communities v. Kingdom of Spain* (n 38); *Regina v. Secretary of State for the Environment, ex parte: Royal Society for the Protection of Birds* (n 38).

by an impact assessment, it cannot be determined with certainty what the expectations and results of the legislation were envisaged to be.

In the absence of clear guidance and in the presence of ambiguity, the Court has assumed a clarification and purposive role. The CJEU is indicating in strong terms the importance of scientific evidence. Due to the disjointed approach to incorporating scientific evidence into legislation,<sup>140</sup> for the moment, the interpretation of the judiciary is perhaps the most efficient method for clarifying and applying the evidentiary requirements of environmental law, and in particular, nature legislation.

140 SAPEA (n 3), p. 110.