PROJECT REPORT

Institute for European Environmental Policy UK

SCOTLAND'S REGULATORY ALIGNMENT WITH EU AND OTHER INTERNATIONAL ENVIRONMENTAL STANDARDS

Report for Environmental Standards Scotland

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About us

The **Institute for European Environmental Policy UK (IEEP UK)** is a sustainability think tank with over 45 years of experience. As part of the broader IEEP family, we are committed to advancing evidence-based research, analysis and policy insights in the UK and its interaction with policy in the EU and globally.

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Disclaimer

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EXECUTIVE SUMMARY

As part of its statutory functions under the Continuity Act, Environmental Standards Scotland (ESS) may keep under review developments in international environmental protection legislation. ESS, therefore, "*...monitor[s] developments in European and international environmental standards and law to highlight areas where changes or further progress is needed*".[1]

It is in this context that EU environmental law often provides a useful proxy for such best practice, given the EU's long-standing role in driving significant progress in environmental protection and its reputation for having some of the highest environmental standards and most ambitious regulations internationally. Furthermore, following the UK's withdrawal from the EU, the Scottish Government committed to maintain or exceed EU environmental standards in areas of devolved competence where appropriate.[i] Consistent with the Continuity Act therefore, *ESS's Strategic Plan 2022-25* states that it will consider the extent to which the Scottish Government's commitment to maintain or exceed alignment with EU environmental standards is being delivered.[2]

Given this context, this report is designed to:

1. Consider relevant evidence and information sources to identify where non-EU countries exceed environmental standards of Scotland.
2. Provide evidence as to the extent to which there is alignment between environmental standards, laws and regulations in Scotland with those in the EU; *and*
3. Provide ESS with recommendations on how it might conduct stocktakes and reviews of best practice in environmental regulation internationally (including the EU) in the future.

With that in mind, it is important to note that monitoring both EU and non-EU developments in environmental laws, regulations and standards over time is not straightforward. The extent of alignment – or divergence – between Scottish and EU

i *This is sometimes referred to as the 'alignment commitment'.*

environmental law for example, is not static. By their nature, these environmental standards are 'moving targets'. Laws, regulations and standards evolve, sometimes rapidly, making such comparisons difficult and resource intensive. This is the broader context in which ESS, when conducting future stocktakes and reviews of best practice, will have to operate in.

The current position is summarised in **Chapter 1**, which indicates that legislative change between Scotland's environmental standards, laws or regulations with those of the EU, has been extensive since the UK's withdrawal from the EU. At least 55 EU directives and regulations (EU secondary law) and 569 implementing or delegated laws (EU tertiary laws) concerned with environmental matters in a broad sense have been identified as having changed since EU Exit.[ii] This is primarily, but not wholly, the result of new or amended EU laws, some of which is highly technical in the case of tertiary EU law, in areas such as plant health regulation and biocidal products. The changes identified in environmental standards, laws and regulations are not confined to one topic area either (e.g. water, waste, nature etc); there is a notable variability across many aspects of environmental law, with changes to climate and resources and waste related laws most prominent.

The rate of the EU's legislative change may not stay the same over the next five years versus the last five years (i.e. since the UK left the EU) but nevertheless ESS may wish to conduct another stocktake ahead of the publication of future strategies to inform and guide the thematic areas on which it wishes to focus. This report briefly evaluates various extant and publicly available legislative trackers to determine whether these could be used by ESS to conduct such a stocktake and ultimately to assess the extent to which Scotland is maintaining alignment with EU environmental standards. The evaluation in **Chapter 1** concludes that, as they stand now, none would sufficiently meet ESS' need if it is to conduct such stocktakes in future and instead the structure for a bespoke legislative tracker has been proffered as a potential solution. This is essentially a 'list' of EU laws which have changed since EU Exit with an added Scottish dimension to help illustrate divergence between the EU's and Scotland's environmental laws, standards and regulations.

Scotland's government could in principle monitor changes made to EU law if it wished to, where the powers in question are devolved and other conditions are met. However, in some cases the powers will be wholly or partly retained at UK Government level, and

ii *The reference period for this project is 01 January 2021 to 31 December 2025).*

Scotland therefore may lack the agency required to affect the change in environmental standards applying within the country. In this sense, some divergence in environmental law in Scotland is probably unavoidable. This is a consideration when ESS comes to decide its priorities for work in this area. It may be advantageous to focus its analytical work and investigative work on areas which are more clearly in areas of devolved, or at least shared, competence. This is considered in **Chapter 2**.

In **Chapter 3**, several illustrative case studies are drawn out of the list of identified divergences. What these indicate is that there is variability in the degree of importance and expected impact that identified divergences have (or will have) as well as the potential short- and long-term effects on Scotland and its environment. What they also point to is that some divergences are easier to spot than others, most notably those that change quantifiable quality standards in legislation (for example an air quality emission limit value). Often changes in law that are procedural or process orientated are not only harder to identify from a relatively rapid scan of legal texts but more difficult to judge and assess as to whether they represent a divergence with practice in Scotland and whether they are likely to have an impact on Scotland's environment.

In **Chapter 4**, the report looks at best practice in environmental standards from non-EU countries, and more specifically at the key issues and challenges in identifying these, as well as what ESS can do to manage and limit the resource required to deliver a robust and relevant list of such standards. Considering the relevant evidence and information sources required to conduct such an exercise, a number of significant challenges are identified. There is, for example, a paucity of authoritative information sources that are easily accessible, regularly updated and designed to provide a swift and reliable assessment or an objective 'ranking' of environmental standards in countries around the world. Further, as legal systems and governance of related institutions differ considerably around the world, there are arguments for focusing a comparative exercise on specific types of legislation where a comparative assessment is most likely to be robust, for example where quantified environmental quality standards (say, an emission limit value for air quality) are specified clearly in legislation and the timescales within which they apply is clear. It is also important to remember that the geographical, administrative and political context is key. A 'stricter' environmental quality standard in one country for a given parameter may not necessarily mean that country is 'better' or more advanced in its environmental ambitions. For example, an arid country may have particularly strict water quantity rules because water is a relatively precious and limited resource but that does not mean those rules should necessarily be followed everywhere.

A key objective and requirement of this project was to consider how ESS might *replicate* an assessment on the extent to which there is alignment between Scottish and EU environmental laws, standards and regulations as well as search for best practice in environmental regulation internationally, in future stocktakes or reviews. **Chapter 5** offers some reflections and recommendations on how to do this so that it can be done in a consistent way at a reasonable level of effort and cost. However, some degree of expertise (and possibly external advice) is required to ascertain the most likely impacts of the divergences identified. A key recommendation for ESS is to ensure there is a high degree of prioritisation and judicious selectivity guiding any detailed analysis of divergences identified. This is especially the case as there is likely to be more, not less, divergence over time, and that extant legislative and policy trackers (see **Chapter 1**) may not exist or be maintained in the years to come.

Chapter 6 proffers overall conclusions. Notably, it argues that the extent of alignment or divergence between Scottish and EU environmental law is, by its nature, a moving target. In the period since departure from the EU, legislative divergence in particular has been extensive with varying degrees of impact on Scotland. Divergences in quantifiable standards are easier to spot and analyse with greater levels of confidence, and this is particularly the case when looking at non-EU environmental standards. There are limits as to what analysing legislative divergence or alignment can achieve and so ESS will need to be highly selective not only to focus on what is 'consequential' for Scotland but also to conserve very limited resources at the organisation. While there are potential benefits from detailed analysis of environmental law and practice in other jurisdictions and divergences from the EU are particularly relevant in Scotland, the resource costs of such analysis need to be kept in mind. Analysing long-term consequences across the board in a robust way requires a level of commitment that may not match the resources available for such an exercise within ESS, and this points to the value of a selective approach focused on the potentially most consequential issues which is kept under review as circumstances develop.

INTRODUCTION

As part of its statutory functions under the Continuity Act, Environmental Standards Scotland may keep under review developments in international environmental protection legislation. It is in this context that EU environmental law often provides a useful proxy for such best practice, given the EU's long-standing role in driving significant progress in environmental protection and its reputation for having some of the highest environmental standards and most ambitious regulations internationally. Furthermore, following the UK's withdrawal from the EU, the Scottish Government committed to maintain or exceed EU environmental standards in areas of devolved competence where appropriate. Consistent with the Continuity Act therefore, ESS's Strategic Plan 2022-2025 states that it will consider the extent to which the Scottish Government's commitment to maintain or exceed alignment with EU environmental standards is being delivered.

The Institute for European Environmental Policy UK (IEEP UK) has been tasked to:

1. Consider relevant evidence and information sources to identify where non-EU countries exceed environmental standards of Scotland.
2. Provide evidence as to the extent to which there is alignment between environmental standards laws and regulations in Scotland with the EU, *and*
3. Provide ESS with recommendations on how it might conduct stocktakes and reviews of best practice in environmental regulation internationally (including the EU) in the future.

In **Chapter 1**, the report sets out the approach taken in evaluating existing trackers of EU and Scottish/UK environmental law, establishing a 'list' of divergences, and analysing the differences by theme. **Chapter 2** classifies the list of divergences by whether these are reserved, devolved or shared competences with the UK government. **Chapter 3** draws out a small number of those identified divergences for further examination considering how and why these constitute a divergence in environmental standards, laws or regulations between Scotland and the EU, and what the potential impact of that divergence could be on Scotland. In **Chapter 4**, the report looks at best practice in environmental standards from non-EU countries – specifically, the key issues and challenges in identifying these,

and what ESS can do to manage and limit the resource required to do this. **Chapter 5** looks at the issue of the replicability of this methodology for any stocktake or review ESS may do in future. In **Chapter 6** overall conclusions are made.

1 IDENTIFICATION OF DIVERGENCE IN ENVIRONMENTAL LAW BETWEEN SCOTLAND AND THE EU

Summary

A key requirement of this project is to evaluate existing trackers of divergence and then produce a list that identifies those divergences between Scotland's environmental law, regulations and standards with those of the EU. The full list of EU divergences in environmental legislation since 1 January 2021 are listed in a supporting searchable database, along with some comparison with Scottish legislation. In summary, the list of identified divergences between Scotland's environmental regulations and standards and those of the EU, totals 55 EU secondary laws (directives and regulations) and 569 EU tertiary laws.

It is important to note that legislative divergence can occur in a number of ways: as a result of Scotland or the UK making changes to its suite of laws, both primary or secondary laws such as Scottish Statutory Instruments; or as a result of changes made to EU law, for example the EU adopting new secondary or tertiary laws or amendments to existing laws (particularly those that the UK and Scotland implemented whilst being a member of the EU). This project focuses on the latter – changes made by the EU since the UK left the European Union.

It cannot and should not be automatically concluded that identified legislative divergence is problematic or indicates Scotland is not 'keeping pace' with EU environmental laws, regulations and standards. Some legislative divergence is unavoidable and not necessarily undesirable. For example, a new EU provision requiring a Member State to produce a report on an environmental matter to the European Commission will have little or no impact, or negative effect on Scotland.

Nevertheless, some legislative divergence is consequential and important, meaning that these examples likely highlight a gap in the level of ambition in environmental standards in areas of devolved competence. These developments more clearly pose challenges to the Scottish Government to demonstrate their resolve in keeping pace and aligning with EU or international best practice on environmental regulation. Good examples here include the 'new' Urban Wastewater Treatment Directive (2024/3019), the Drinking Water Directive (2020/2184), Ambient Air Quality Directive (2024/2881), and Ecodesign for Sustainable Products Regulation (2024/1781).

Though identifying and listing legislative divergences is relatively straightforward, the voluminous amounts of change can cause certain challenges. Some are technical in nature and can be resource intensive to track whilst at the same time many are, as mentioned above, of less importance to Scotland. However, this report highlights that it is still important to identify, track and monitor these changes as some can have material impact on the conclusion as to whether there is alignment or not with Scotland's environmental standards (a pertinent example is described below with regard to EU's Registration, Evaluation, Authorisation and Restriction of Chemicals (EU REACH) and lead ammunition in gunshot).

Finally, the publication of an annual Work Programme from the European Commission which sets out what legislative (or non-legislative) measures they will put in place in the year ahead, is a reminder that environmental laws are not static – they change, often frequently and quickly, making any attempt by ESS to assess alignment or divergence between Scotland's environmental laws, regulations and standards and those of the EU, challenging. Nevertheless, such publications are valuable resources for ESS to be aware of and utilise in its monitoring and analytical work.

An evaluation of legislative trackers

Three existing trackers of divergence between Scottish/UK and EU environmental law were examined as part of this study to determine their suitability for assessing whether Scotland is maintaining alignment with EU environmental standards and laws:

1. Scottish Parliament Constitution, Europe, External Affairs and Culture (CEEAC) Committee's *EU Law Tracker*[3]
2. UK in a Changing Europe's (UKiCE) *UK-EU divergence tracker*[4]
3. Institute for European Environmental Policy UK's (IEEP UK) *Divergence tracker*.[5]

It was concluded that none of the legislative trackers sufficiently met ESS' need to scrutinise effectively whether changes in environmental law – either at the EU level, in Scotland, or at the UK level – will impact Scotland's environment.

This is partly because a legislative tracker is essentially only a 'list' of legislation. In order to more fully assess the impact on Scotland's environment, further detailed evidence gathering, research and analysis of each relevant topic is required. However, what a legislative tracker can do is signpost towards legislative changes likely to be more

consequential and *impactful*[iii] on Scotland's environment. This can then help ESS to better prioritise its limited resources to scrutinise and assess those legislative changes most likely to have a consequence or impact on the environment.

The trackers evaluated each have specific strengths, though they also have limitations with regard to ESS' specific needs. For example, the CEEAC EU Law Tracker is uniquely focused on Scotland and considers divergence and alignment through the lens of Scotland's commitment to align with EU law. The other legislative trackers do not do that – they are instead focused on the wider UK-EU relationship. The CEEAC EU Law Tracker is highly methodical in its approach and lists relevant (environmental) legislation in a single place. However, the CEEAC EU Law Tracker does not provide analysis of the potential or likely *impact* of identified divergence on Scotland's environment. In other words, it does not deliver the 'signposting' element important for ESS' need to understand the consequence and impact of legislative change on the environment.

Whilst the UKiCE and IEEP UK trackers do not consider Scotland specifically, they do go some way to providing separate analyses of the impact of divergences and/or alignment between UK and EU environmental law. The IEEP UK analyses are detailed and focus on environmental law and policy however they are irregular and resource intensive to reproduce,[6] likely making them unsuitable for ESS' needs. UKiCE on the other hand include a broad spectrum of legislative and policy developments often covering non-environmental themes. These are published regularly each quarter and are open access, but do not typically list legislative change systematically in the way the CEEAC EU Law Tracker does. However, UKiCE's approach to producing concise analytical summaries is highly effective in signposting readers to issues of relevance and may represent more of a balance between the CEEAC EU Law Tracker and IEEP UK tracker. This would allow ESS, were it to build on this model, to cover more environmental subjects more quickly

iii *This report uses a variety of terms such as consequential, impactful, significant, likelihood and sensitivity. These are subjective terms based on IEEP UK's expert opinion. Ultimately, what is deemed 'consequential' or 'significant' will be a matter for ESS to decide and give due weight to one policy or legislative development over another. IEEP UK for example might consider changes to offshore wind energy policy in the North Sea as a 'sensitive' issue with regards to Scotland/UK relations or a change to a piece of tertiary EU law that introduces a restriction to a biocidal product or amends a pesticide residue level may be considered as 'inconsequential' especially if in Scotland those are not used or by a very small number of actors.*

and help it triangulate and prioritise for further research those areas or issues likely to have most consequence for Scotland's environment. An example of such summaries can be found in **Chapter 3** and **Annex 1**.

Developing a list of divergences

Based on the evaluation of the legislative trackers outlined above, a bespoke legislative tracker has been produced tailored to ESS' needs. This is in the form of an Excel database and builds on the structure established by the CEEAC EU Law Tracker as this provides the most robust and methodical approach to tracking legislative developments. However, unlike the CEEAC EU Law Tracker, it focuses only on environmental related law developments. It provides a list of EU divergences in environmental legislation between 01 January 2021 and 31 December 2025.

Overall, the list of identified divergences between Scotland's environmental regulations and standards and those of the EU totals 55 EU secondary laws (directives and regulations) and 569 EU tertiary laws. The list details the name of the EU legislation, whether it is EU secondary or tertiary law, provides a hyperlink to the EU's Official Journal, the year it was adopted into law, the latest consolidated version of the legal text, and whether legislation is a devolved, reserved or shared competence with the UK Government (see **Chapter 2**).

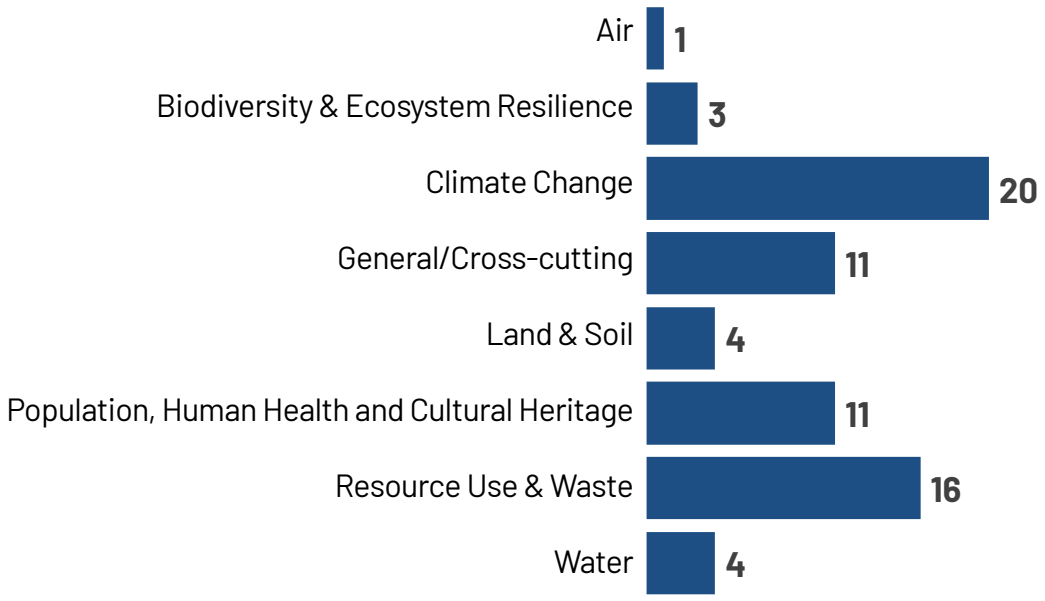
Figure 1 Excerpt from Scotland/EU divergence 'list

EU Legislation Full Name	*EU Legislation Short Name*	*Regulation/ Directive/ Decision*	*EU - Secondary/ Tertiary*	*Year*
Air				
Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast)	Ambient Air Quality	Directive	Secondary	2024
Biodiversity & Ecosystem Resilience				
Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869	Nature Restoration	Regulation	Secondary	2024
Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species	Prevention and Management of the Introduction and Spread of Invasive Alien Species	Regulation	Tertiary	2024
Climate Change				
Regulation (EU) 2025/2083 of the European Parliament and of the Council of 8 October 2025 amending Regulation (EU) 2023/956 as regards simplifying and strengthening the carbon border adjustment mechanism	Carbon Border Adjustment Mechanism Amending Regulation	Regulation	Secondary	2025
Regulation (EU) 2024/1787 of the European Parliament and of the Council of 13 June 2024 on the reduction of methane emissions in the energy sector and amending Regulation (EU) 2019/942	Methane Emissions	Regulation	Secondary	2024
General/Cross-cutting				
Directive (EU) 2025/794 of the European Parliament and of the Council of 14 April 2025 amending Directives (EU) 2022/2464 and (EU) 2024/1760 as regards the dates from which Member States are to apply certain corporate sustainability reporting and due diligence requirements	Amending implementation of corporate sustainability reporting and due diligence requirements	Directive	Secondary	2025

Thematic analysis of identified divergences

Based on the thematic areas identified in ESS' 2022-25 Strategic Plan (Air; Biodiversity & Ecosystem Resilience; Climate Change; Cross-cutting Environmental Governance; Land & Soil; Population, Human Health and Cultural Heritage; Resource Use and Waste; and Water),[7] an analysis of the identified divergences indicate that over half of the 55 divergences in EU secondary law (regulations and directives) relate to just two thematic topic areas: *Climate Change* (20) and *Resource Use and Waste* (16).

Legislative divergence by thematic area:



55 identified pieces of environmental law that Scotland/UK have diverged from EU environmental law

In contrast, the thematic topic areas of *Air* (1) and *Water* (4) both suggest that relatively little legislative change has taken place. However, in both the *Air* and *Water* thematic topics, major directives have been amended; in the case of air, the Ambient Air Quality Directive (2024/2881), is a significant 'upgrade' on its predecessor from 2008[8] and in the case of water for example, the Urban Wastewater Treatment Directive (2024/3019) also makes significant changes to its predecessor law as described in Chapter 3. What this means, therefore, is that a degree of caution ought to be exercised when reviewing the number of legislative changes. The quantity of legislative change is not a credible indicator for the significance of a legislative change and/or divergence for Scotland and its environment.

Identified divergence with EU secondary law

The project team has identified at least 55 EU secondary law (regulations and directives) that represent a divergence between Scotland's environmental regulations and standards and those of the EU.

Legislation in this category can be divided into three sub-groups:

1. "New" EU secondary legislation, either Directives or Regulations,[iv] adopted *after* the UK (and Scotland) left the EU. This is legislation that dates from the period since 01 January 2021. These new laws usually raise the level of environmental ambition. For example, Regulation 2025/2365 on plastic pellet loss is a recent addition to the suite of EU environmental law aimed at reducing microplastic pollution. Similarly, the EU has adopted a directive related to soil monitoring and resilience (2025/2360) (often referred to as the 'Soil Monitoring Law') requiring Member States to monitor and assess soil health and tackling issues such as contaminated sites. Other notable examples include: the Nature Restoration Regulation (2024/1991), Repair of Goods Directive (2024/1799) and the Critical Raw Materials Regulation (2024/1252).
2. Amendments made to EU secondary environmental law that was already adopted in January 2021 and in force in Scotland. Good examples of these include changes to the Urban Wastewater Treatment Directive (2024/3019), the Drinking Water Directive (2020/2184), Energy Performance of Buildings Directive (2024/1275) and the Ambient Air Quality Directive (AAQD) (2024/2881). Amendments of this type also tend to 'tighten' up the existing law (and usually that upon which Scottish regulations are based,[v] for example by requiring stricter emission limit values. Other notable examples include amendments to the Industrial Emissions Directive (2024/1785), Waste Shipments Regulation (2024/1157) and Waste Electrical and Electronic Equipment Directive (2024/884).

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iv *It is important to note that secondary EU legislation can also include Decisions, Opinions and Recommendations which have differing impact and effect, but for the purposes of this report the focus is on Directives and Regulations.*

v *A good example of this is the AAQD which requires Member States to put in place a 20 µg/m³ limit value for nitrogen dioxide (NO_2) whereas the 'old' 2008 AAQD and Scottish Air Quality (Scotland) Regulations 2000 set a 40 µg/m³ limit value for NO_2.*

3. A much smaller number of new EU secondary environmental laws that have arisen because the EU has repealed an existing directive or regulation and replaced it with a new piece of law. The adoption of Regulation 2024/1781 on 'setting ecodesign requirements for sustainable products' (ESPR) is a good example of this,[vi] as is the Construction Products Regulation (2024/3110) and the Packaging and Packaging Waste Regulation (2025/40). The overall effect is similar however to an amendment of law, as described above.

IEEP UK applied a deliberately broad set of criteria for environmental law when assessing which EU laws should be included in the 'list' of divergence

There is a degree of subjectivity as to what should or should not be included within a list of what constitutes environmental law. For the purposes of this study, IEEP UK has taken a deliberately broad view when assessing which EU laws should be included in the list associated with divergence between Scotland's environmental regulations and standards and those of the EU.

In many cases, where laws are impacting air or water quality or biodiversity it is clear that these are environmental in nature. In some cases, it is less obvious. For example, it was chosen to include a number of laws relating to fisheries management and a large number concerned with the placing on the market and use of biocidal products, or plant protection products. These may not usually be perceived as mainstream environmental law but very often do have an environmental rationale, at least in part, and have been included for completeness even though they fall outside of scope of purely environmental law.

For instance, the EU regulates the placing on the market and use of biocidal products and has built a substantial body of tertiary law around a core regulation on the topic (Regulation (EU) No 528/2012). This project for example has identified 308 changes to EU tertiary law since leaving the European Union relating to this parent law. This detailed technical legislation is varied in the obligations it creates and will not always be relevant to products used in Scotland or suitable for Scottish conditions but were it to be in force in Scotland

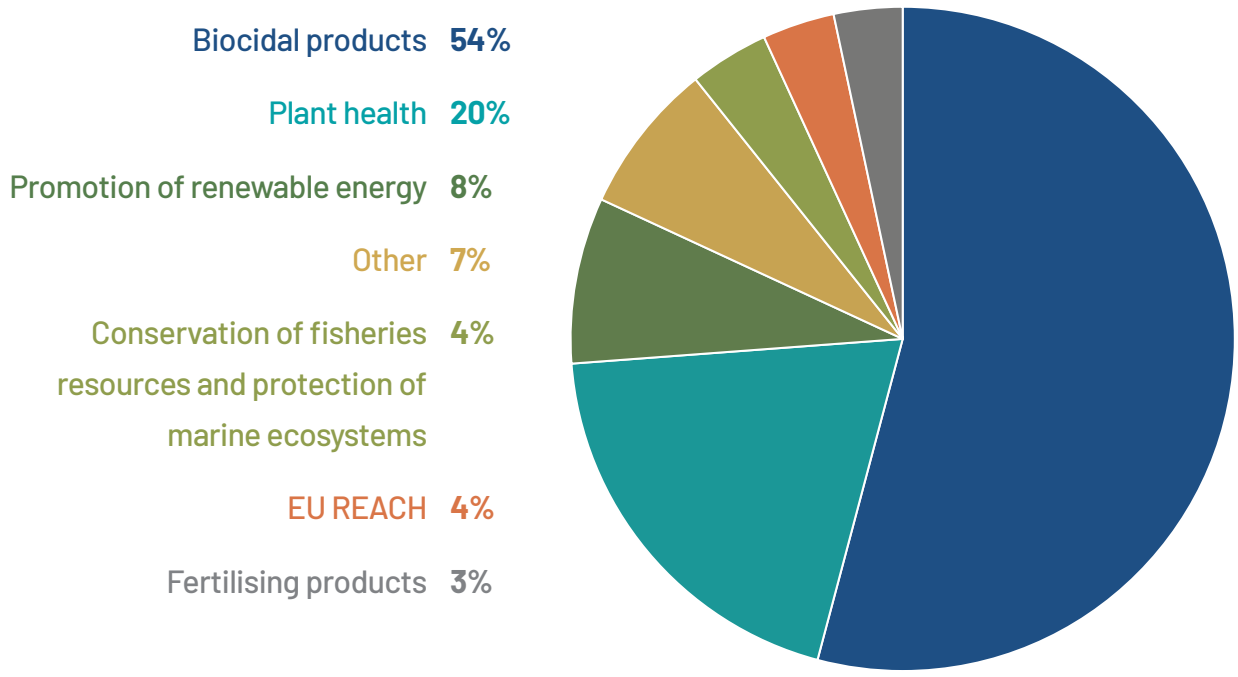
vi *The 2024 ecodesign for sustainable products regulation replaced the earlier 2009 ecodesign directive (2009/125/EC), the 2024 construction products regulation replaced the earlier 2011 iteration of this law (305/2011), and the 2024 Packaging and Packaging Waste Regulation replaced the 1994 iteration of this law (94/62/EC).*

it might have significant implications for the choice of products available to farmers and the conditions of use-with ensuing environmental implications. For such reasons and for the overall purposes of this project, it has been decided that a reasonably broad view of what constitutes environmental law and a preference to include rather than exclude potentially relevant legislation has been taken for completeness' sake.

The relative merits of tracking and understanding the consequences of EU tertiary law

The project team has also identified a total of 569 delegated and implementing acts (EU tertiary law) of relevance to ESS which have been introduced since EU Exit and represent varying degrees of divergence between Scotland and the EU in terms of environmental standards. However, most of these technical measures relate and make amendments to a small number of secondary laws – their 'parent' acts. For example, tertiary laws relating to biocidal products (528/2012) account for over half of the total number (308) whilst the Plant Health regulation (2016/2031) accounts for approximately 20% of EU tertiary laws in this reference period (122).

Figure 2 Percentage weighting of tertiary law updates since EU Exit by secondary law



There are some other notable examples too. Since 01 January 2021, there have been 20 changes to tertiary law relating to EU REACH.[vii] In many cases, these have added substances to the list of 'restrictions' for use because of the potential environmental/human health impact. Chem Trust[9] and Green Alliance[10] report that 13 restrictions on the use of hazardous chemicals have been adopted by the EU since the UK left, the majority of which have not been replicated by the Health and Safety Executive under UK REACH and thus causing divergence in law and giving rise to a misalignment in environmental standards. Of these 13 restrictions, there are some notable examples including restrictions made to substances in tattoo ink and permanent make-up (2020/2081), lead in gunshot in/around wetlands (2021/57), polycyclic aromatic hydrocarbons in clay targets (2025/660) and **PFAS in firefighting foams** (2025/1988).

EU tertiary legislation is more numerous than EU secondary legislation. This means that for Scotland and ESS to track and assess the extent of alignment with EU environmental standards, laws or regulations, the following considerations should be made:

- EU tertiary law often, but not always, deals with technocratic changes to its 'parent' laws, similar to the way that a Scottish Statutory Instrument would implement or amend technical details in its parent Act. This means that the alignment commitment extends beyond the relatively visible realm of EU secondary legislation and that changes to EU tertiary law can be consequential for Scotland and its ability to determine the extent to which it is aligning with EU standards.[11]
- As EU tertiary law tends to be voluminous, tracking developments over time can be resource intensive, *but*, EU tertiary law tends to be concentrated around a small number of parent laws indicating that ESS can limit the size of this task by focussing on arguably more, 'core' pieces of environmental legislation e.g. EU REACH rather than say, biocidal products.

vii *EU REACH, or Registration, Evaluation, Authorisation and Restriction of Chemicals, is an EU regulation to tackle the impact of chemicals on humans and the environment. UK REACH is similar in some regards and applies in Great Britain – England, Scotland and Wales. Northern Ireland applies EU REACH related rules.*

REACH & the case of lead ammunition in gunshot

Changes made since the UK left the EU to legislation regarding lead ammunition in gunshot typifies how alignment/divergence is not a static concept, making the task of assessing the environmental consequences of divergence exceedingly difficult. Regulation, laws and policy are live and evolve, sometimes quickly, and it can take time for Scottish (or UK) law to 'catch up' with developments elsewhere.

The EU ban on lead shot in wetlands in 2021[12] led to varying amounts of divergence with UK nations including Scotland[13] because different nations of the UK have different restrictions in place.[14] A decision to restrict lead in ammunition under UK REACH (and therefore applying to Scotland too) was made in June 2025 [15] by the UK Government and would, in broad terms, mean Scotland would 'catch up' and exceed the EU's 2021 restriction for example by applying to all terrain and not just in and around wetlands. However, in late 2025, the EU published a new, updated proposal to go further in this area.[16] It is important to note that it is not yet clear whether this will pass into law. The new EU restriction goes further than the UK REACH restriction by applying to lead in fishing tackle though the timelines for when both the UK restriction and the possible new EU restriction are different.

Looking ahead to further possible divergence

On 21 October 2025, the European Commission published its anticipated work programme (WP) for 2026.[17, 18] Legislative proposals in the WP may in time cause further divergence with Scotland's environmental regulations and standards. The Commission's WP is a valuable source of intelligence for ESS and is relevant for ESS' work in assessing the extent of alignment in the future. As such, this underlines how the concept of divergence in environmental laws, regulations and standards is not static; by its nature, it is a 'moving target'. Laws, regulations and standards evolve, sometimes rapidly.

Areas of note and potential relevance for Scotland and ESS going forward included within the 2026 WP are:

- A **Circular Economy Act** is due to be proposed in Q3 2026. Focusing on developing secondary raw materials markets, it builds on the 2020 Circular Economy Action Plan.[19]
- On **climate policy**, a revision of 'national targets and flexibilities in the EU climate policy framework' (expected Q4) and an update of the EU emissions

trading system relating to maritime, aviation and stationary installations (expected Q3). Also, a 'European integrated framework for climate resilience' is also expected in Q4.

- An **Energy Union Package**, including possible updates to the Renewable Energy Directive and Energy Efficiency Directive (expected in autumn 2026). Linked to this, a new Heating and Cooling initiative is expected in Q1 too.
- To help deliver a wider Ocean Pact,[20] an **Ocean Act** and a **Vision 2040 for fisheries and aquaculture** are due to be presented. Key features are likely to include a revision of the Maritime Spatial Planning Directive and proposals for establishing and managing marine protected areas.

2 RESERVED, DEVOLVED AND SHARED COMPETENCES

Summary

The project team was asked to classify any identified divergences by whether the legislation in question would fall within a reserved or a devolved policy competence.[21] In many cases this is perfectly clear. The environment as a whole is a devolved matter. For example, the permitting, inspection and enforcement (of breaches) related to a fixed installation is regulated by Scottish laws (i.e. Pollution Prevention and Control Regulations)[22] linked to the EU Industrial Emissions Directive. However, correct classification is not always immediately apparent. For example, there can be EU legislation in a policy realm which either patently does or could have the potential once implemented in the UK, to cover areas where some powers are devolved and others are reserved. This may point to a likely shared competence, and various judgements might be required to make a firm categorisation. Judgements in less clear cut or more contentious areas may be required as well. More broadly, as argued in a recent House of Commons library report,[23] there can be considerable complexity in defining what is, and what is not a reserved or devolved policy competence. To account for this, a further 'shared competence' category has been added to the classification system in the divergence list.

Given the possible complexities of undertaking an authoritative classification and the limited scope and scale of this project, the classifications included here have been based simply on a mixture of readily available literature and some judgement by the authors and should not be taken as reflecting any dedicated legal analysis or expertise in this field. Specialist advice has not been sought.

Figure 3 Indicative classification of devolved/reserved matters

EU Legislation Full Name	*EU Legislation Short Name*	*Devolved/ Reserved/ Shared*
Air		
Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast)	Ambient Air Quality	Devolved
Biodiversity & Ecosystem Resilience		
Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869	Nature Restoration	Shared
Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species	Prevention and Management of the Introduction and Spread of Invasive Alien Species	Reserved
Climate Change		
Regulation (EU) 2025/2083 of the European Parliament and of the Council of 8 October 2025 amending Regulation (EU) 2023/956 as regards simplifying and strengthening the carbon border adjustment mechanism	Carbon Border Adjustment Mechanism Amending Regulation	Reserved
Regulation (EU) 2024/1787 of the European Parliament and of the Council of 13 June 2024 on the reduction of methane emissions in the energy sector and amending Regulation (EU) 2019/942	Methane Emissions	Reserved

It is recommended to Environmental Standards Scotland that in so far as required, and within the scope of its remit, it seeks its own legal advice as to the state and status of reserved / devolved matters impinging on legislation considered here.

3 CASE STUDY EXAMPLES IDENTIFIED DIVERGENCES BETWEEN SCOTLAND AND THE EU

Summary

In this section, several illustrative case studies are drawn out of the list of identified divergences in the section above. The case studies relate to legislative divergence between Scotland's environmental regulations and standards and those of the EU and represent a broad cross-section of examples in different thematic areas and where there are greater or lesser amounts of devolved/reserved competence. For example, the case study on **urban wastewater treatment** is a devolved measure, whereas the case study on **PFAS in firefighting foams** is a reserved competence. They reflect divergence between Scottish law and regulations with both EU secondary (e.g. directives and regulations) and tertiary law (i.e. implementing and delegated laws). All briefly consider the main areas of divergence followed by an assessment of the potential environmental impact of that divergence. An example of the general methodology used to produce these case study summaries is demonstrated in **Annex 1** and relates to the case study on the **environmental crime**. In many cases, the availability of recent analysis or relevant expertise in IEEP UK has been a factor in the selection.

These illustrative case studies tell us that:

1. Some divergences are easier to identify than others, most notably those that change quantifiable quality standards in legislation (for example an air quality emission limit value) but often changes in law are procedural or process orientated and these are not only harder to spot but more difficult to judge and assess as to whether they represent a divergence with practice in Scotland.
2. In many cases, the EU adds wholly new provisions into its laws oftentimes with no corresponding law(s), regulations or standards present in Scotland. The question of whether these have or will have at some point in the future an 'impact' on Scotland is complex; it is difficult to predict, is debateable and is affected by many competing factors.

Water

- **Urban Wastewater Treatment** (devolved policy competence)(secondary EU legislation)
- **Drinking Water** (devolved policy competence)(secondary EU legislation)

Nature and Land Management

- **Nature Restoration** (devolved policy competence)(secondary EU legislation)
- **Land Use and Land Use Change** (shared policy competence)(secondary EU legislation)

Waste Management, Pollution & Resources

- **Plastic Pellet Loss** (shared policy competence)(secondary EU legislation)
- EU REACH specifically, **PFAS in Firefighting Foams**)(reserved policy competence)(tertiary EU legislation)

General & Cross-Cutting

- **Energy Efficiency** (shared policy competence)(secondary EU legislation)
- **Environmental Crime** (devolved policy competence)(secondary EU legislation)

Urban Wastewater Treatment

Devolved policy competence

In 2024, the EU adopted a recast of the Urban Wastewater Treatment Directive (UWWTD),[24] replacing the original 1991 UWWTD (91/271/EEC).[25] This new piece of legislation entered into force on 01 January 2025, and is a major extension of the earlier directive, introducing a large number of changes many of which are significant.[26] Scotland applies legislation implementing the 1991 directive[27] and has not sought to align with the changes adopted in the 2025 legislation. Consequently, the recast EU directive has led to legislative divergence between the EU and Scotland. It is important to note, however, that the Scottish Government has stated that it is assessing the recast UWWTD, with a view to possible alignment.[28]

Key changes in the recast directive include the introduction of stricter requirements for treatment and collection, as well as a requirement for Member States to produce integrated urban wastewater management plans for the largest urban areas, which in some areas should include plans for managing storm water overflows (SWOs)[viii] (FN viii In EU legislation, there is reference to 'storm water overflows' but in Scotland (and the UK) these are known simply as storm overflows, of which there are two main types, combined sewer overflows and settled storm sewage overflows.). Significantly, the 2024 revision also introduces an extended producer responsibility (EPR) scheme for producers of medicines and cosmetics, requiring them to cover 80% of the investment and operational costs for quaternary treatment of urban wastewaters to remove micropollutants and residues resulting from those products placed on the market.

Storm water overflows

Article 5 of the recast UWWTD sets out a requirement on Member States for the adoption of Integrated Urban Wastewater Management Plans, which include "objectives for the reduction of pollution from storm water overflows".[29] These are to be produced for drainage areas of agglomerations with a population equivalent (p.e.) of over 100,000 and are to be reviewed every six years. This opens up divergence with Scotland where

viii *In EU legislation, there is reference to 'storm water overflows' but in Scotland (and the UK) these are known simply as storm overflows, of which there are two main types, combined sewer overflows and settled storm sewage overflows.*

there is currently no legislative requirement for the Scottish Government to produce a plan for SWOs – unlike in England where this is mandated under the Environment Act 2021. In a recent report, ESS has called for the Scottish Government to produce updated guidance on SWOs.[30]

Collection of urban wastewaters

The 2024 EU directive lowers the p.e. threshold for agglomerations which must be provided with collecting systems for urban wastewater from 2,000 to 1,000. These new systems must be in place by 31 December 2035. This creates divergence with Scotland, which retains the 2,000 p.e. threshold mandated by the 1991 directive.

Secondary and tertiary treatment

The 2024 EU directive made substantial modifications to existing rules on secondary treatment of wastewater. The expansion of the number of agglomerations in scope of the UWWTD's wastewater collection requirement to include those over 1,000 p.e. means that the requirements for secondary treatment have also been widened. An additional derogation has also been added for settlements in high mountain areas, and another for agglomerations between 1,000-2,000 p.e. in cold climates.

The recast UWWTD introduces a reference to 'tertiary treatment' for the first time. In the original 1991 directive, 'more stringent treatment' – what is now termed tertiary treatment – was required only for sensitive areas. However, this obligation has now been expanded to cover all agglomerations over 150,000 p.e. by 2039. It will also be required for all agglomerations over 10,000 p.e. by 2045. All these updates to secondary and tertiary treatment requirements represent divergence from Scottish legislation.

Quaternary treatment and emerging pollutant monitoring

Obligations in relation to treatment to tackle the presence of micropollutants in wastewater discharges – quaternary treatment – is introduced for the first time in the recast EU directive. This treatment should tackle a 'broad spectrum of micropollutants'[31] and will be required for agglomerations over 150,000 p.e. by 2045. Member States must also introduce monitoring at wastewater treatment plant inlets and outlets for a wide range of pollutants, including emerging contaminants such as PFAS.

These aspects of the UWWTD are divergent from Scottish wastewater legislation, which currently does not outline any requirements for quaternary treatment, and does not mandate inlet and outlet monitoring for micropollutants.

Potential impacts of divergence

It is important to remember that, as Scotland does not have a shared river basin or border with an EU member state, the introduction of the new UWWT law in the EU has no direct impact on Scotland per se. What the introduction of the directive does do, however, is highlight the differing levels of ambition set by the EU and Scotland (and the UK) with regard to the treatment of wastewaters and how it will go about tackling contaminants of concern such as PFAS and microplastics. In this context, it must be noted that many of the provisions of the new EU directive have implementation deadlines set some way into the future, in the 2030s and 2040s.

Not only is the new EU law 'stricter' for example around secondary and tertiary treatment of wastewaters but it also moves wastewater law into new areas such as introducing EPR obligations on medicine and cosmetics producers. The introduction of an EPR is significant, not only as its primary intent is to limit the impact of costs of investment and operations of upgrading wastewater treatment to those that cause the pollution – i.e. to ensure the 'polluter pays' – but also as a signal and recognition of growing concerns expressed by the public that different contaminants like PFAS and microplastics have on the environment. This is reflected too in the introduction of quaternary treatment obligations with regard to micropollutants. It is conceivable, therefore, that due to these additional treatment requirements, EU citizens could be less exposed than those in Scotland to the impacts of contaminants like PFAS and microplastics which are increasingly linked to negative health and wellbeing outcomes.

It is important to note that many EU member states, like the nations of the UK, have found implementing obligations relating to the 'old' 1991 UWWT directive challenging. This 'new' directive requires substantially greater efforts to be made which necessarily leads to increased cost in investment to be made. The new directive is therefore going to be expensive for many EU member states. Scotland would likely face similar cost challenges too, particularly in smaller, more rural areas of the country.

Drinking Water

Devolved policy competence

The EU's 'recast' (revision) of the Drinking Water Directive (DWD) (2020/2184), which came into force in 2021, updated a previous version of the directive from 1998. The European

Commission claims that it takes a 'source to tap' risk-based approach, requiring Member States to create risk assessments and management plans for the entirety of the drinking water supply chain (both public and private). The directive also updates and expands water quality standards, adding new limit values for substances such as endocrine disruptors and PFAS. Furthermore, it introduces a requirement that water suppliers introduce an operational monitoring programme and new specifications on minimum sampling frequencies for such compliance monitoring – which are based on the volume of the water supply. Implementation of the recast DWD by Member States was required by January 2023.

In January 2023, Scotland used its 'keeping pace' powers under the Continuity Act, to pass the Public Water Supplies (Scotland) Amendment Regulations 2022[32] to bring Scotland partially into line with the EU's new DWD. The legislation updates Scotland's water quality parameters and standards – including for PFAS and other emerging pollutants. It also brings Scotland into alignment with the DWD's requirements on minimum sampling frequencies and operational monitoring programmes.[33] There are, however, various aspects of the DWD with which Scotland is not currently aligned, and the Scottish Government has already commissioned work to review alignment issues with regard to the DWD.[34]

Limits values for lead

The current Scottish law is not strictly aligned with the DWD on the limit value for lead in drinking water; the 2022 regulations maintain a 10 µg/L lead limit at the tap, which is above the 5 µg/L limit specified under the DWD. However, the DWD does allow Member States a transitional period on this until 2036, and the Scottish Government has communicated its understanding that alignment would mean acting by that date but has not yet committed to doing so.[35]

Additionally, Scottish legislation currently only applies to public water supplies, and not to private supplies which are used by 3% of the Scottish population.[36] Scottish Government has recognised this alignment gap[37] and has gathered a Private Water Supply Steering Group to discuss the potential for alignment.[38] While it has not publicly made any concrete commitments to aligning in this area in future, policy documents suggest that this may be included in upcoming private water supply reform.[39]

An EU 'watch list' of contaminants

The DWD creates a watch list of emerging contaminants for drinking water, which

is periodically updated by the European Commission. A guidance value is given for each substance; Member States must then take steps to ensure that the substance is monitored at relevant points along the water supply chain, that treatment is sufficient to reach the guidance value, and that sufficient preventative and remedial measures are taken. The first watch list,[40] published in 2022, listed beta-estradiol and nonylphenol – two endocrine-disrupting substances. The Scottish regulations do not currently have such a watch list, and the government has noted that in order to align, 'Ministers need the ability to add new watch list parameters to Scots law in a dynamic way'.[41]

Leakage, risk assessment, risk management, supply and distribution systems

Scottish law is not yet aligned with Articles 7, 8, 9 and 10 of the recast DWD on risk assessment and risk management of catchment areas, the supply system and domestic distribution systems (DDS). According to Scottish Government, alignment would principally require changes to regulation on catchment and DDS, including the introduction of new duties for Ministers to perform general DDS risk assessments every six years and to set out a lead reduction strategy.[42]

There is also non-alignment on Article 4(3) of the recast directive, which addresses leakage. In order to align, additional duties for Scottish Water to carry out annual water leakage level assessments, publish a leakage action plan, and provide information to the public on leakage would need to be implemented.[43]

Potential impacts of divergence

Despite the range of areas of non-alignment identified, the ones with the most potential to have significant implications for ecosystem services, functions, public health and wellbeing are the lack of alignment on lead limit values and the emerging pollutants watch list.

The majority of lead piping in Scotland is privately owned and therefore not under the control of Scottish Water.[44] Scottish Water does, however, have an obligation to minimise risk from dissolved lead, which it currently seeks to achieve through the use of orthophosphate to reduce lead dissolution.[45] It would appear likely that rather than aligning immediately on the revised lead limit value, the Scottish Government's approach would be to use the full EU transition period (to 2036) to allow for the gradual replacement of lead piping before reducing the limit value.

Lead has been designated by the WHO as a chemical of major public health concern, owing to its toxic effects on multiple body systems and links to the developmental

intellectual disabilities.[46] By not aligning with the EU emerging pollutants watch list, this risks placing people and the wider environment at risk of prolonged exposure to contaminants including endocrine disruptors, which can affect physiological and biochemical processes in the human body.[47]

Nature Restoration

Devolved policy competence

The EU's Nature Restoration Regulation (NRR)[48] is a key element of the wider EU Biodiversity Strategy[49] and is designed to extend the scope and ambition of the EU's nature directives (the Habitats & Birds Directives).

The NRR's headline commitment is the legally binding targets to restore at least 20% of the EU's land and sea areas by 2030 and all ecosystems in need of restoration by 2050. This commitment to 'restore' sits alongside the EU biodiversity strategy target to 'protect' 30% of land and sea by 2030. Alongside this it sets ecosystem-specific targets for terrestrial and marine ecosystems, as well as agricultural, forest and urban ecosystems and pollinators.

The NRR also has a lot more in its scope:

- more urban green space and urban trees (no net loss of urban green space and urban tree cover by 2030 and increase it after this date);
- articles on river barrier removal (Water Framework Directive ecological continuity), restoring 25,000km into free-flowing rivers by 2030;
- pollinator monitoring and restoration of pollinator populations, (improving diversity and reversing the decline by 2030);
- mandatory biodiversity indicators for forestry and agriculture
- planting 3 billion additional trees across EU by 2030;
- peatland rewetting (including 30% restoration of organic soils on drained peatland by 2030, a quarter of which should be rewetted);
- requirements for policy coherence notably with climate mitigation & adaptation policies; and
- mobilisation of both public and private funding/financing (notably an area where the UK is more advanced than most EU Member States).

Member States have two years to draft and adopt Nature Restoration Plans (NRPs) demonstrating the measures they will implement to achieve the EU targets. The European Commission then has six months to review and comment on these. Monitoring and reporting requirements are based on a set of harmonised indicators. In the EU, the peatland rewetting and restoration sub article 11(4) of the NRR is in support of the EU climate law and land use, land use change and forestry (LULUCF) targets – which in turn are the EU's commitment to the UNFCCC Paris agreement targets.

Scotland has an intention to keep pace with EU nature legislation and introduced the Natural Environment (Scotland) Bill on 19 February 2025, though this has not been adopted at time of writing. The elements that are of most relevance in comparison to the EU's NRR are on targets for restoring biodiversity.

On targets, the Natural Environment (Scotland) Bill proposes that Scottish Ministers have a duty to set at least one target relating to habitats; threatened species; and nature regeneration, each with an indicator against which progress is tracked. The Bill does not specify what these targets are, but it outlines the process for producing and reviewing these. The actual targets, such as the detail of the quantitative figures, will then be provided in secondary legislation. Environmental Standards Scotland is charged in the Bill with undertaking an independent quality assurance role on the review of progress towards targets.

On EIA and habitats regulations the stated purpose of the Natural Environment Bill is to maintain and advance standards relating to the natural environment, biodiversity and environmental assessments. Notable reasons for this are to facilitate progress to other statutory targets including net zero targets set by the Climate Change Scotland Act, and to ensure consistency and compatibility with other legal regimes (domestic and international). This would replace a power that was lost as a result of the UK exiting the EU. Concerns have been raised about the powers this gives to Scottish Ministers to make future changes to environmental protections without parliamentary scrutiny.

Potential impacts of divergence

With Member States still drawing up their own nature restoration plans on how to deliver the NRR targets, it is conceivable that the progress of Scotland's Natural Environment Bill and secondary legislation to set targets would mean that there is little consequential time difference between Scotland and EU nations adopting their respective strategic plans. The main impact would come from any differences in the targets themselves, the scope and detail of the obligations, the associated monitoring

and other governance requirements and a potential difference that targets are legally binding at an EU level but not at a member state level. However, whilst there is a broad commitment in Scotland to align with the EU, the reality could be different to the political intention, and there is still scope for divergence from the EU nature restoration targets, particularly as the scope of the Scottish targets is narrower than those in the NRR.

Without explicit comparative Scottish targets, no analysis has yet been done on the impact of diverging ambitions. A series of IEEP and Ecologic policy briefs published at the time the Nature Restoration Law was proposed looked at the impact this law could have.[50]

Ahead of the NRR's final adoption a letter signed by over 50 businesses and trade bodies was sent in support of the Law, which referenced the European Commission's impact assessment which found that for every €1 invested in nature restoration, €8-38 is gained thanks to climate change mitigation, prevention and reduction of natural disasters, improved water quality, cleaner air, healthier soils and boosting people's overall wellbeing.[51]

If Scotland decides to align with other UK nature targets, for example those set out in England via the Environment Act and subsequent Environmental Improvement Plan, existing analyses of divergences with the EU could be used. A 2022 study by IEEP UK identified some areas of concern in the different approaches taken in England to the EU, specifically around biodiversity targets, which by and large has not changed substantially in the subsequent Environmental Improvement Plans.[52]

Land Use, Land Use Change & Forestry

Shared policy competence

Under the UNFCCC's climate agreements and processes, greenhouse gas emissions and sequestration from human induced land use, land use change and forestry (LULUCF) are grouped together and accounted for as the LULUCF sector.[53] It is a crucial sector in efforts to tackle climate change as both a source and a sink of greenhouse gas emissions. They are sequestered by forestry, grassland and peatland, but emitted when these are destroyed through deforestation, peat draining, conversion to cropland and other activities. It is therefore a crucial sector in tackling climate change.

In 2023 the EU adopted the Land Use and Land Use Change (LULUCF) Regulation (2023/839)[54] updating the previous LULUCF Regulation (2018/841).[55] The latter set

out commitments of Member States for the land use, land use change and forestry ('LULUCF') sector that contribute to achieving the objectives of the UNFCCC Paris Agreement and meeting the greenhouse gas emission reduction target of the Union for 2021 to 2030. It also covered rules for the accounting of emissions and removals from LULUCF and for checking the compliance of Member States with these commitments.

The 2023 Regulation built on these with updates such as expanding the scope of the legislation; amending the reporting and compliance rules; strengthening the link between climate mitigation and environmental protection measures; and updating targets including an overall EU target for net removals as well as individual targets for each Member State for the period from 2026 to 2030. The majority of the new provisions take effect from 2026,[56] when a new 5-year emissions reporting period begins.

Member States must also strengthen synergies between climate change mitigation and biodiversity protection; ensure other aspects of policy are aligned with the LULUCF Regulation targets; and integrate land use considerations into their National Energy and Climate Plans (NECPs) and CAP Strategic Plans.[57] The 2018 LULUCF Regulation was revoked in the UK, including in Scotland, by the Climate and Energy (Revocation) (EU Exit) Regulations 2021. The rationale for revocation was that the Regulation specifically related to obligations that applied to EU Member States in relation to EU wide targets. The explanatory memorandum[58] stressed that the UK will continue to meet its international obligations via domestic legislation. Of specific relevance for Scotland, these are the (UK-wide) Climate Change Act 2008[59] and the Climate Change (Scotland) Act 2009 which set out a framework and targets to meet such obligations. Though this means that there is no directly equivalent LULUCF legislation, Scottish Government's Climate Change plans, required under the Climate Change (Scotland) Act 2009,[60] include specific policies on the sector. The most recent plan covering 2026-2040 is being consulted upon until 29 January 2026.[61] In addition, Scotland must feed into the UK's UNFCCC inventory, for greenhouse gas reporting, which includes a dedicated section on the LULUCF sector.[62]

The key areas of divergence between Scotland and the EU in relation to LULUCF are focused on targets and scope of the legislation.

Targets

Article 4.2 of the EU LULUCF Regulation (2023/839)[63] has an overall Union target for net greenhouse gas removals in the LULUCF sector of 310MtCO2e in 2030, a reduction of 55% compared to 1990 levels.[64] Individual Member States all have their own targets for

net removals laid out in Schedule III of the Regulation.[65] Schedule III also includes the average net emissions for the LULUCF sector in 2016-2018 in each MS and the level of emissions it needs to have reduced and/or removed from that period to 2030.

Scotland does not have an overall target for 2030 for the LULUCF sector, rather it has a Draft Climate Change Plan for the period to 2040 which contains a specific section dedicated to the LULUCF sector with woodland and peatland creation targets.[66] These include:

- An increase in the annual woodland creation targets every year until 2030, with 18,000ha per year planted by 2029/30; *and*
- Increase peatland restoration by 10% per year to 2030 and then maintain annual restoration levels leading to a total area restored of 400,000 ha by 2040.
- The target of 18,000 was included in the previous Climate Change Plan,[67] aiming to meet it by 2024/25, but this was not met.

Scope

The LULUCF Regulation (2023/839) covers all managed land, whilst Scottish policies set out in the Climate Change Plan's LULUCF section are focussed on measures specific to forestry and peatland though it should be noted that there is a chapter with regard to agriculture and associated emissions reduction measures.

Potential impacts of divergence

The lack of a dedicated LULUCF target on emissions and a variation in scope complicates the task of assessing the impact or potential impact of legislative divergence between Scotland and the EU in this area. For example, it is unclear what the specific UK target would have been, were it still subject to the Regulation nor how it would have been shared amongst the constituent parts of the UK. It is also complicated by different overall targets in Scotland and the EU. Under the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019,[68] Scotland's overall emissions reduction target across all sectors is net zero by 2045, five years' earlier than the EU's target year, 2050.[69]

The Climate Change Committee has welcomed the Scottish Government's draft Climate Change Plan overall and noted that targets have been set in line with their advice[70] however, it is unclear whether a specific response to the proposals for the LULUCF sector have been made.

Plastic Pellet Loss

Shared policy competence

The EU adopted a Plastic Pellet Loss Regulation (PPLR) in November 2025. This is a new piece of EU environmental law that has emerged after the UK left the EU. It aims to improve the control and management of plastic pellets throughout the supply chain. Frequently called 'nurdles', plastic pellets are a key industrial material used widely in manufacturing. They are the second largest source of primary microplastic pollution globally, with over 445,000 tonnes estimated to enter the environment worldwide annually,[71] and spillages are exceedingly difficult to clean up.[72] Though most commonly associated with ship spills, the escape of nurdles into the environment is a risk at all stages of the plastics supply chain.[73]

EU PPLR overview and scope

The EU's PPLR introduces plastic pellet handling requirements for economic operators and EU and non-EU 'carriers' (transporters of plastic pellets by road, rail or inland waterways).[74] It makes prevention, containment and reporting mandatory across much of the supply chain and seeks to tackle pellet pollution both on land and sea.

Businesses handling over five tonnes of plastic pellets per year must now put risk management plans into place which contain mandatory actions – such as the use of spill trays – to prevent pellet loss during handling.[75] Companies must also report on the total number of pellets handled each year and keep records of losses prevented or cleaned up. Companies handling under five tonnes per annum are exempt.

Additionally, companies handling over 1,500 tonnes of pellets per year must complete an additional third-party certification of conformity with the regulation once every three to five years. SMEs handling under 1,500 tonnes are able to provide a self-declaration of conformity.

Carriers of pellets both within and into the EU are also subject to rules on packaging quality and integrity. The PPLR also makes binding for EU-based maritime operators the recommendations of the International Maritime Organization on the carriage of plastic pellets by sea.[76]

Scottish policy on plastic pellet loss

Scotland does not have an equivalent, legally binding standard or regulation to prevent plastic pellet losses. However, in its Marine Litter Strategy, the Scottish Government has taken some non-legislative steps to tackle this issue, including the formation of the Scottish Plastic Pellet Loss Steering Group.[77] It also sponsored a voluntary Publicly Available Specification 510 (PAS) standard – the first formalised industry pellet handling standard worldwide.

Across the rest of the UK, the movement to tackle plastic pellet losses has also been predominantly voluntary and industry led. Part 3 of the UK Marine Strategy for example, refers to PAS 510 and Operation Clean Sweep – an industry-led voluntary pellet loss reduction scheme.[78]

As part of a report into marine litter, ESS made several recommendations linked to plastic pellet loss.[79] A Scottish Government response confirmed that it 'remained committed to addressing the issue of plastic pollution from pellet loss' but that more information was required.[80]

Potential impacts of divergence

Unchecked plastic pellet pollution has, and will continue to have, wide impacts across ecosystem services, function, public health and wellbeing in Scotland and beyond. An impact assessment conducted for the EU's PPLR estimates placed annual pellet losses at between 52,140 and 184,290 tonnes in 2019.[81] The same assessment further estimates that the new law could reduce pellet losses to the environment by between 65% and 87%.[82] The high mobility of such microplastics across geographies suggests that preventing such losses would be advantageous to citizens in Scotland.

Research has found that plastic pellet pollution in soil leads to soil alterations which affect plant health.[83] Additionally, their presence in marine environments has been shown to have effects on ecosystem services – including provisioning, regulating and supporting services. A 2021 study found that, while concentrations were low on a global scale, microplastics were present in the surface waters of every Scottish Marine Region and Offshore Marine Region.[84] Fisheries are affected as hundreds of species – from all trophic levels[85] – are known to ingest plastic in the marine environment.[86] Studies have shown that these ingested microplastics can be passed up the food chain.[87] Additionally, there is evidence that these microplastics can act as vectors for other pollutants into organisms, including bioaccumulative POPs which are linked to endocrine disruption

and falling fish populations.[88] There is also potential for these ingested microplastics to be detrimental to human health via consumption of contaminated fish.[89]

However, a lack of available data means that it is not possible to measure the effectiveness of existing voluntary measures in Scotland in reducing pellet losses and their associated impacts on environmental and human health. This also complicates comparison with the EU's pellet loss regulation and understanding the impacts of divergence. The Scottish Government has not published data on the environmental, social or health impacts of plastic pellet pollution, nor does it monitor the number of businesses implementing the voluntary PAS 510 standard.[90] A review of relevant literature for this project did not discover other non-Government datasets routinely monitoring this issue. It is perhaps conceivable that large economic operators handling or transporting plastic pellets for example in or between Scotland and other jurisdictions, particularly those in the EU, may adhere to the PPLR and thus reducing potential risks of pellet loss, but this is conjecture only.

PFAS in Firefighting Foams

Reserved policy competence

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) are a 10,000-strong group of chemicals, also known as 'forever chemicals' as a result of their extreme resistance to breakdown in the natural environment. PFAS pollution is already widespread across Europe.[91] Research has found that the cost of cleaning up PFAS pollution could be over £1.6tn across the UK and Europe over a 20-year period.[92]

The EU's PFAS in Firefighting Foams Regulation (PFFR), passed in October 2025, amends the EU's Registration, Evaluation, Authorisation and Restriction of Chemicals (EU REACH) regime to restrict the use of per- and polyfluoroalkyl substances (also known as PFAS or 'forever chemicals') in firefighting foams.[93] The European Commission estimates that approximately 60% of firefighting foams contain PFAS.[94] Under the new regulation all firefighting foams which contain equal to or greater than 1 mg/L of PFAS will be banned from being sold or used from 23 October 2030.

There are earlier deadlines for bans covering firefighting foams in portable fire extinguishers (23 October 2026) and alcohol-resistant firefighting foams in portable fire extinguishers (23 April 2027), but these may continue to be used until the October 2030 deadline with

appropriate labelling, stock separation and management plans. There is a later deadline of 23 October 2035 for emergency uses (e.g. civilian aviation and military vessels).

Current policy on PFAS in firefighting foams in Scotland

In the UK, this is a reserved policy area. A ban on PFAS in firefighting foams coming into place in Scotland would be most likely to be brought about through amendments to UK REACH and would be decided on by Defra and the Scottish and Welsh governments.[95]

While there is currently no ban on PFAS in firefighting foams in place in Scotland equivalent to the EU one, a consultation was launched by the Health and Safety Executive (HSE) in August 2025 on restricting the use of all PFAS chemicals in firefighting foam in Great Britain under UK REACH.[96] This consultation will run until February 2026. The proposed restriction relates to 'the placing on the market and use of PFAS as a constituent in firefighting foam', setting out transitional periods including six months from the restriction's entry into force for the use and placing on the market of portable fire-extinguishers.[97] The use of PFAS-containing foams for emergency situations such as aviation sites and for defence have longer transition periods of five years and use on offshore oil and gas installations would be permitted for up to 10 years.[98]

Certain PFAS, including PFOS, PFOA and PFHxS are already banned in Great Britain under assimilated EU law,[99] though the UK has lagged behind further PFAS bans under EU REACH since leaving the European Union, including for C9-14 PFCAs and PFHxA.

Potential impacts of divergence

Academic research has found that firefighting foams are a leading source of PFAS pollution in both soil[100] and water.[101] The HSE estimates that around 48 tonnes of PFAS are released into Great Britain's environment each year through firefighting activities, training exercises, and run-off water.[102]

The negative effects of PFAS contamination on environmental and human health have been the focus of increasing scrutiny from the media and public in recent years. The impacts of PFAS-containing firefighting foams have also received wide coverage, including an ENDS Report investigation which found that the highest concentration of PFAS in the UK is found in the small Yorkshire town of Bentham, owing to the presence of a firefighting foams production facility.[103] Separately, residents in Jersey were recommended bloodletting in order to reduce high PFAS concentration levels in their blood as a result of the use of firefighting foams at the island's airport, which contaminated drinking water.[104]

The negative effects of PFAS, on human health are widely documented and can lead to a variety of illnesses including liver damage, thyroid disease, obesity, fertility issues and cancer,[105] though available evidence varies by type of PFAS. Research has also shown a potential link between firefighters' increased exposure to PFAS and increased risks of certain cancers.[106] HSE has noted that while there is limited evidence the human health effects of some of the types of PFAS most commonly used in firefighting foams (PFAAs), there is information to suggest that their adverse effects are similar to the more widely studied types such as the already-banned PFOA.[107]

There is also a large body of research of the effects of PFAS on the environment. Field studies have found that the use of PFAS in firefighting activities has led to elevated concentrations of these chemicals in soil, sediment, groundwater, surface water, drinking water, and biota.[108] PFAS, including the PFAAs subtypes predominantly found in firefighting foams, are known to be toxic to wildlife.[109] Long-term exposure to some types of PFAAs has been shown to lead to disruption of metabolic, immune and endocrine functions, as well as lower reproductive success.[110] PFAS also bioaccumulate in terrestrial and aquatic plants and animals, becoming more concentrated – or biomagnifying – as they move up the food chain.[111] PFAAs have been found to be persistent and bioaccumulative.[112]

Given the timeline of the HSE consultation and the timelines for the transitional periods for PFAS-containing firefighting foams outlined in the accompanying Annex 15 Restriction Report, it is most likely – if indeed the restriction is implemented at all – that the phase-out timeline for their placing on the market and usage in Scotland will lag behind the EU's equivalent timeline. This would mean that the environmental and human health impacts associated with the usage of PFAS-containing foams would continue for a longer period in Scotland than in the EU.

Energy Efficiency

Shared policy competence

Current EU legislation on energy efficiency is set out in Directive (EU) 2023/1791, replacing the previous 2012 directive which was implemented by means of new UK legislation applicable in Scotland.[113] The revision of the Energy Efficiency Directive, without corresponding change within UK legislation therefore has led to a divergence between the EU and Scotland.

The 2023 Directive has an aim to achieve an 11.7% reduction in energy consumption across the EU by 2030, compared to 2020 levels. This means that total EU energy consumption by 2030 should not exceed 992.5 million tonnes of oil equivalent for primary energy and 763 million tonnes of oil equivalent for final energy (for all sectors).

EU Member States are required to produce National Energy and Climate Plans (NECPs), essentially 'national roadmaps' showing how they intend to reach their energy and climate targets. In May 2025, the European Commission released its assessment of NECPS to date, reporting that while many countries had raised their energy efficiency ambitions, there was still a gap to reach the EU-wide 2030 targets.

The 2023 Directive also emphasises the centrality of the "Energy Efficiency First" principle.[114] This is intended to stress that not only is it a priority to reduce reliance on fossil fuels, but it is also imperative to reduce energy production regardless. Specifically, the principle is based on three tenets:

- only the energy really needed is produced
- investments in stranded assets are avoided; and
- demand for energy is reduced and managed in a cost-effective way.

While Scotland (and the UK as a whole) does not have overarching energy efficiency legislation for direct comparison, there are some regulations and standards of relevance.

Certain interventions focus on the domestic sector. It is worth noting that a 2017 study[115] for the UK Government found that the UK's domestic sector consumes a relatively high amount of energy compared to the EU average. UK households consumed 176 kWh per m^2 in 2017, which places it slightly above the EU average of 173 kWh per m^2.

The Energy Efficiency Standard for Social Housing (EESSH) was established by the Scottish Government in 2014. As a result, homes in the social rented sector are now some of the most energy efficient in Scotland, with 85% already achieving EPC ratings of D or above. Social housing represents around 24% of homes in Scotland. The Standard was then reviewed in 2017-18, and a subsequent consultation proposed new standards, which have not yet been implemented.[116]

In 2019, only 42% of owner-occupied homes in Scotland were rated as Energy Performance Certificate (EPC) band C or better. The Scottish Government has carried out a consultation, the recommendations from which include proposals for legislation to require a minimum energy efficiency standard to be met before the end of 2033 for privately-owned homes.

In November 2025, the Scottish Government published the draft Buildings (Heating and Energy Performance) and Heat Networks (Scotland) Bill, with the intention to introduce it during the next Parliamentary session.[117] This forms part of the Government's plan to decarbonise heat in buildings by 2045. It sets a heat decarbonisation target that by 2045, no direct emission heating system will be used in any building in Scotland. It also establishes a provision that "Scottish Ministers may by regulations set minimum energy performance standards for buildings in which direct emission heating systems are used", although it does not specify what these standards should be. Meanwhile, the EU is ahead with its ambition on direct emission heating systems, with total phaseout by 2040 mandated by the 2024 Revised Energy Performance of Buildings Directive.[118]

The Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019[119] sets fuel poverty targets. Specifically, it legislates that by 2040, fewer than 5% of Scottish homes should be in fuel poverty. Fuel poverty here is defined on basic fuel costs exceeding 10% of net adjusted household income. The Scottish Government's Fuel Poverty Strategy identifies failures to address energy efficiency policy as one of the key drivers of fuel poverty.[120] The Fuel Poverty Act thus contains an implicit imperative to improve domestic energy efficiency for poorer households.

The Assessment of Energy Performance of Non-domestic Buildings Regulations 2016[121] require non-domestic buildings over a thousand square metres in Scotland to produce an Energy Action Plan at the point of sale or rental, while all non-domestic buildings must produce an Energy Performance Certificate at the point of sale or rental. The Scottish Government plans to introduce regulations to reduce greenhouse gas emissions from heat in non-domestic buildings in line with the legally binding target to achieve net zero greenhouse gas emissions by 2045.

Improving the energy performance of buildings helps to strengthen energy independence and energy security, leads to lower energy bills, and reduced grid investment needs. The Scottish Government's 2017 review of climate change mitigation options in the built environment highlighted the potential positive benefits of retrofitting housing for physical and mental health.[122] However, it also identified possible unintended negative effects, including reduced ventilation, poorer indoor air quality and over-heating. Public Health Scotland is therefore developing a scoping review of evidence, exploring the impacts of retrofitting housing with energy efficiency improvements on the health and social determinants of health for householders.[123]

Potential impacts of divergence

Energy efficiency standards and targets cover a wide range of different sectors and activities which potentially are affected by a range of different legal interventions. In this case, the EU and Scotland are moving in the same broad direction, and both have overarching GHG emission reduction targets which bear heavily on energy consumption. It would be possible for Scotland to meet similar levels of energy efficiency as those aimed at within the EU without adopting the same measures as in the EU's 2024 legislation. However, the current approach in Scotland puts less emphasis on medium-term efficiency standards than the EU now does, with potentially significant implications in some sectors such as domestic energy use.

Environmental Crime

Devolved policy competence

In 2024, the EU adopted a revised Environmental Crime Directive (ECD) (2024/1203). This replaced a previous version of this directive (2008/99/EC) which Scotland (and the UK) had implemented when it was a member of the EU. The new directive's purpose is to strengthen criminal enforcement against serious environmental harm across EU Member States and introduces a series of new obligations. The directive requires member states to put in place stricter penalties for an increased range of environmental crimes (the number of environmental crimes listed in the new directive has increased from 8 to 20 versus the previous 2008 iteration of the directive), systems to freeze and confiscate the 'proceeds of crime' and publish data and information about environmental crime amongst other measures.

A key objective of the ECD is to 'level up' and harmonise criminal sanctions for breaches of certain environmental laws across the member states. This is against a backdrop of generally low numbers of criminal prosecutions for environmental crimes across the member states. Many favour the use of administrative penalties instead.

Though the introduction of the ECD represents a significant divergence in environmental law between Scotland and the EU, many of the provisions included within the revised ECD are in place in Scotland already. There is to some extent, significant elements of alignment. For example, provisions that enable the liability for legal persons and the freezing, confiscation and seizure of the proceeds of crime have

existed in Scottish law for some time. However, there are some differences too, with for example, requirements to create a national strategy, publishing statistical data for environmental crime as well as on the severity of penalties for some offence types.

A national strategy on environmental crime

The requirement for a national strategy on environmental crime in the ECD is potentially significant, something that Scotland (or the UK as a whole) does not have. The ECD requires that the objectives and national priorities of policy for combatting environmental crime would need to be set and for it to be evaluated periodically. The requirement for setting out what all competent authorities are doing to combat environmental crime would presumably mean that the Scottish Government would need to take the lead in the development of such a plan bringing together bodies such as the Scottish Environment Protection Agency (SEPA), NatureScot, Police and Crown Office and Procurator Fiscal Service (COPFS). It would need to set out the level of resources required, how cross border environmental crime would be managed and how coordination with other countries or parts of the UK would occur.

Statistical data

Article 22 of the ECD requires statistical data on environmental criminal offences to be published. An investigative journalism article published in 2023[124] noted that the Scottish Environment Protection Agency published 'comprehensive' statistics (meaning both administrative and criminal offences) up to 2019 but has subsequently ceased producing such reports.[ix] Though SEPA can and does report prosecutions information through it's 'Media Centre',[125] data that agglomerates criminal case information relating to environmental crime in Scotland is not readily and easily accessible by the public or stakeholders.

The publication of data on prosecutions (as well as a national environmental crime strategy) could help to tackle a real or perceived deficit of public trust which the investigative journal article alludes to, but which is supported in conclusions reached by the 2015 Wildlife Crime Penalties Review Group[126] and a literature review carried out on sentencing of environmental and wildlife crimes for the Scottish Sentencing Council.[127]

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ix *It is important to note that SEPA publishes information on its website relating to administrative penalties. The Scottish Government publishes information (on behalf of NatureScot) relating to wildlife crime.*

The latter asserts that it, "...compiles and assesses statistical data about the sentencing of environmental and wildlife crimes by Scottish courts against the backdrop of other comparable jurisdictions, most notably England and Wales. It reveals that criminal law is very prudently used in Scotland for the enforcement of environmental regulations" and it "cautiously" argues that there is an "ambivalence in the sentencing of the different types of environmental and wildlife crimes".

Penalties

Article 5 of the ECD sets out the penalties to be applied for criminal offences. These have been strengthened in comparison to the previous 2008 directive and in some cases exceed provisions set down in Scottish law for the same/similar offences. Despite the introduction of strengthened penalties for wildlife related crimes under recent law,[x] there is some discrepancy with ECD provisions. For example, most habitats and species related offences carry with them a penalty of up to 6 months imprisonment and/or £5,000 fine whereas the ECD stipulates a maximum term of imprisonment of at least three years. Broadly speaking there is alignment for penalties for 'pollution' related offences (up to five years imprisonment) though the ECD stipulates a maximum term of imprisonment of at least five years for breaches of regulations relating to fluorinated gases and ozone depleting substances whereas in Scotland/UK, a fine (only) can be issued.

Potential impacts of divergence

Unchecked environmental crime undermines confidence in environmental law generally as well as core environmental principles such as that the polluter pays and that there will be rectification of pollution at source. Environmental crime can sometimes be transnational in nature and is sometimes tied up with organised crime (particularly in waste-related cases). Applying criminal sanctions in environmental crime cases is usually expensive and time consuming, and it is reserved for the most serious environmental crimes.

A range of studies point to the environmental and societal impacts of environmental crime but very few focus on Scotland specifically.[128] The Ecocide (Scotland) Bill[129] going through the Scottish Parliament is linked to the issue of environmental crime but

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x *Most notably, the Animals and Wildlife (Penalties, Protections and Powers) (Scotland) Act 2020.*

focuses on a relatively narrow subset albeit the most damaging, severe, widespread and long-lasting effects of such crimes.

Many of the requirements set out in the 2024 EU Environmental Crime Directive are already in place in Scotland. For example, authorities have the power to freeze the 'proceeds of crime' and confiscate equipment used in environmental crimes, there are laws to tackle the aiding and abetting of crimes and criminal prosecutions can be brought for offences against those listed in the directive. The ECD though tightens up penalties particularly for some wildlife related crimes, requires the creation of a broad, national strategy to tackle as well as the regular publication of statistical data on prosecutions.

4 ENVIRONMENTAL STANDARDS IN NON-EU COUNTRIES
A SEARCH FOR INTERNATIONAL BEST PRACTICE

A key function of Environmental Standards Scotland is that it may keep under review developments in, and the effectiveness of, international environmental protection legislation. However, there are a number of key issues and challenges when attempting to find international best practice in environmental regulation. The following sections detail the challenges concerned and what ESS can do to manage them to limit the resource required to deliver this function going forward. This is based on an IEEP UK review of relevant evidence and information sources where a non-EU country exceeds or may exceed standards of Scotland and the EU, and/or might be considered as international best practice.

A focus on key strategic themes

It would be costly (in terms of ESS' time and resource) to look at all environmental quality standards set in regulations across all environmental policy themes (e.g. waste, water, nature, etc) across all (or many) countries in the world. To limit the task, ESS could consider focussing on key themes set out in its proposed 2026-2031 strategy:[130] climate change, nature, resources and water. However, even then, ESS would likely need to focus on more specific sub-themes. For example, within the resources theme, ESS could pick out for example recycling rates, resource productivity, residual waste targets or collection targets for textiles or hazardous waste. Indeed, more generally, identifying instances where a non-EU country exceeds the environmental standards of Scotland and which would be considered to have international best practice in environmental regulation is not an easy and straightforward task and requires patient and methodical research which is time consuming and costly. As such, ESS should consider being highly selective over which policy areas it decides to examine in detail.

Country focus

Attempts to limit the size of the task by examining environmental policy themes in a small or limited number of countries which one may expect to have similar standards as Scotland such as Australia, Canada and parts of the United States does not generally help. The range of countries that may have higher standards (or more ambitious environmental objectives) than Scotland can be quite broad. For example, for the air quality thematic example, a number of countries exceed Scotland's sulphur

dioxide objective set down in law (125 µg/m³)[131] include Paraguay, Uruguay, Cameroon (all 20 µg/m³), Turkmenistan, Israel, Panama (all 40 µg/m³), Cuba (45 µg/m³), Brazil, Colombia, Ghana, Senegal, Russia, and Kazakhstan (50 µg/m³). Similarly, Scotland's PM2.5 annual average limit value (10 µg/m³)[132] compares with: Norway and Israel (5 µg/m³), Australia and Malawi, (8 µg/m³), Canada (8.8 µg/m³), USA, Puerto Rico (9 µg/m³).[133] This adds to the challenge but also emphasises the need to focus any future study on a highly selective policy theme to limit impact on ESS resources. It is also important to note that individual European countries who are also members of the EU, sometimes exceed quality standards set at the EU level. A good example of this is in Denmark where drinking water standards for PFAS are higher than the EU minimum threshold mandated by law (see case study example in box). It therefore serves to remind ESS that individual EU member countries sometimes exceed the baseline minimum standards set an EU level and so should be considered when carrying out such studies in future.

Denmark, PFAS and drinking water standards

In 2020, the EU passed a recast of the Drinking Water Directive (DWD),[134] updating the earlier 1998 DWD and expanded its scope to include chemical, microbiological, and emerging contaminants, including certain types of PFAS. For the first time at the EU level, the Directive sets binding limit values for PFAS concentrations in drinking water. Under the new DWD, Member States must monitor either the sum of 20 specified PFAS compounds, with a maximum allowable concentration of 0.10 µg/L, or the total PFAS concentration, which must not exceed 0.50 µg/L. Compliance is required in Member States by January 2026.

In setting a 2 ng/L limit for four specific PFAS (PFOA: perfluorooctanoic acid, PFOS: perfluorooctane sulfonic acid, PFNA: perfluorononanoic acid, and PFHxS: perfluorohexane sulfonic acid), Denmark established in 2021 high levels of ambition on PFAS in drinking water.[135] It went further in 2024 by adding perfluorooctanesulfonamide (FOSA) and 6:2 FTS[136] following the EU's passing of the revised DWD. Though Denmark is an EU member state it has gone beyond the minimum thresholds set out in the EU's DWD.

A paucity of information sources at international level

There is a general lack of easily accessible and authoritative sources at an international (non-EU) level, that are regularly updated and designed to provide a simple overview, and that enable swift and reliable assessment or a 'ranking' of objective environmental standards in countries around the world. Academic articles and reports produced by different national and international bodies (including Multilateral Environmental Agreements) tend not to be systematic or schematic and generally are not designed to identify international best practice in environmental regulation, taking due account of (political, legal, socio-economic, or geographic) context. Where reports indicate this, they can be out of date reasonably quickly, thus limiting their usefulness. There are, however, some exceptions to this. In areas where there are quantifiable quality standards such as in the air quality and water quality (linked to PFAS) spheres, there is evidence that environmental policy areas linked to human health may suggest comparative information at the international level through global bodies like the WHO and UNEP, are more available.[xi]

Quantifiable vs. qualitative (quality standards)

Mandatory environmental quality standards set in regulations e.g. emission limit values, provide for a more comparable and readily available evidence base with other countries than most other legal mechanisms such as procedural requirements. As legal systems around the world vary, as well as the form and content of specific legislation and the strength of related institutions, qualitative assessments of say a procedural or operational standard may be too challenging to permit robust international comparisons without considerable work and use of expert judgement. For similar reasons, robust comparative assessment of qualitative or performance-based standards, for example, could also be challenging because of the need to take account of the institutional strength and capacity of the (regulatory) public bodies concerned.

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xi *Good examples for air quality are the WHO's air quality standards database (Link to web page) and interactive dashboard (Link to web page). And for water quality (linked to PFAS) include the WHO's* Global Overview of National Regulations and Standards for Drinking-Water Quality *(Link to web pages here and here), the OECD's* Endocrine Disrupting Chemicals in Freshwater: Monitoring and Regulating Water Quality *report (Link to web page) and The Basel, Rotterdam and Stockholm Conventions* Joint scientific and technical publications *library (Link to web page).*

Context (geographical, administrative, political)

Even when comparing quantifiable standards, there is a risk that apparently 'higher' standards are mistakenly assumed to be stricter than the Scottish (or UK) equivalent because standards are often context specific. For example, an arid country may have strict water quantity rules because water is a relatively precious resource so they are essential to achieve a certain environmental outcome, whereas in countries with an abundance of rainfall and surface/groundwater generally (e.g. Scotland), environmental standards and regulations relating to water management may be comparatively weaker but able to meet the same or even a higher environmental standard. Similarly, strict application rules for a specific pesticide may be appropriate in one country and not in another if its application is confined to a particular crop that is not grown there.

5 FUTURE APPROACH TO STOCKTAKES OR REVIEWS

Under its first strategic plan (2022-25), ESS considered alignment of Scotland and EU laws, standards and regulations as a cross-cutting theme in all analytical and investigative work, with findings and recommendations on alignment included in published reports on soils,[137] marine litter,[138] particulate matter[139] and storm overflows.[140] ESS also established an International Advisory Panel to provide expert advice on the development and implications of international environmental law.

However, a key requirement of this project is developing a methodology that allows ESS to *replicate* the assessment on the extent to which there is alignment/divergence between environmental standards, laws and regulations in Scotland with the EU *and* wider international best practice, on a recurring basis, potentially on a five-year cycle.

The approach taken by IEEP UK and the issues and challenges highlighted throughout the report can be used to help form the evidence base with which to define ESS strategic priorities going forward in such a stocktake or five-yearly review cycle. For example, focussing monitoring effort on a smaller subset of EU tertiary law on 'core' environmental laws like EU REACH, rather than the Biocidal Products or Plant Health regulations (see **Chapter 1**). It will be important to recognise though that it is likely to get harder over time to monitor developments in EU environmental law as change and divergence increases, and as such ESS would need to consider the cost/benefits of significant resource to generate this evidence for any new strategy. Furthermore, a focus on quantifiable environmental quality standards in legislation from around the world is likely to provide a more robust evidence base than searching for and making qualitative assessments of a procedural or operational standard.

It is in this context that it is recommended that ESS consider a structured three-step approach to replicating such an assessment in future:

1. Scan, develop and maintain a long list of potential points of divergence;
2. Selection and initial interrogation of (a limited number) of legal measures/ developments for analysis;
3. Detailed analysis of a small sub-set of identified divergences which appear to have impact, clear consequence or significance for Scotland's environment.

Step 1 – would involve an initial scan of potential points of divergence between environmental standards, laws and regulations in Scotland with the EU's. A list can then be developed, such as that annexed to this report and as detailed in **Chapter 1**.

The list can be formed using a combination of information generated from key sources such as the:

- EU's Official Journal (and its searchable database);[141]
- Scottish Government's 'keeping pace' Annual Reports to Parliament (Section 10 reports);[142] *and the*
- Scottish Parliament, Constitution, Europe, External Affairs and Culture Committee's (CEEAC) EU Law Tracker.[143]

This would require a sustained degree of diligence and investment in time and resource from ESS to keep such a list current and up to date. As noted in **Chapter 1**, in the five years since EU Exit, at least 55 EU secondary laws and more than 500 tertiary EU laws of relevance to ESS and environmental law have been found. Listing such 'potential' points of difference though would not require any detailed analysis so would likely not require technical knowledge of the subject matter.

Step 2 – would involve selecting a limited number of important[xii] legal measures/ developments for further analysis using, for example, the structured approach illustrated in **Annex 1**. This would shed light on divergence issues and to some degree on the potential impacts in so far as they were the logical conclusions to be drawn from a comparative review of the texts without detailed specialist knowledge of the policy area or any detailed research.

Step 3 – would involve developing a more detailed analysis of a smaller selection (sub-set) of identified divergences where the potential impacts appeared initially (in Step 2) to be either noteworthy, clearly significant, of wide (public) interest and/or consequential for Scotland, its ecosystem services, functions, public health or wellbeing. This would focus on potentially consequential divergences and potential impacts and might require more specialist knowledge, acquired from outside ESS as and where necessary. This step is likely to be more resource intensive and could not easily follow a standard approach.[xiii]

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xii *In this context, 'important' could be defined as those that have strategic relevance to ESS e.g. it is a priority area within its Strategy, or a political priority for Scottish Government.*

xiii IEEP UK recognises that ESS already has a commitment as set out in its 2026-31 Strategy to consider relevant international obligations, standards and law in its analytical and investigatory work (see p.15, *Link to document*).

6 KEY FINDINGS AND CONCLUSIONS

Divergence or alignment between Scotland and EU environmental law is, by its nature, a 'moving target'

Environmental laws, regulations and standards change frequently. As this report has shown, at least 55 EU directives and regulations (EU secondary law) and 569 implementing (EU tertiary laws) have changed since 01 January 2021. This does not include legislative changes made by the Scottish Government or the UK Government, which also contribute to divergence/alignment. Not only has there been extensive legislative change, but there has also been variability in divergence in terms of the topics (water, waste, nature etc.) and whether they will have short- or long-term effects. Crucially, there is also variability in the degree of importance of divergences. Through this project, this is judged mainly through the prism of expected environmental outcomes in Scotland.

Judging what is consequential for Scotland is difficult but ultimately important to limit the size of the task

When considering divergence, there is often a voluminous amount of legal divergence, but it is critical that a 'laser-like' focus is applied to what is *consequential* for Scotland. For example, what level of environmental impact would a change in a new EU legal measure have on Scotland? Does the change have implications that are confined to Scotland/UK, are there cross-border/boundary concerns and/or are there impacts upon shared resources e.g. in the North Sea? Will changes result in the shifting of the location of production of an industry or the sale of products that affect Scotland and its environment? Will the change affect companies operating across boundaries and will their actions affect Scotland's environment? The Brexit & Environment group of academics describe this as a 'threshold', and one must decide at what point this is considered problematic.[144] Given the complexity of many laws and legal systems – including within the UK itself which can compound the challenge – making a judgment on this is difficult but important.

Some technical divergence is largely unavoidable; much of this is negligible but some materially affects Scotland's environment

As this report shows, many legal measures (often tertiary EU law) include changes to relatively minor or inconsequential matters for Scotland such as a change to a new reporting obligation by the Member States to the European Commission or one its agencies. It could be, for example, that an EU tertiary law introduces a chemical substance prohibition or a product restriction; but, if these are not sold or used in Scotland, this would have little or no effect on Scotland's environment. However, as this report also shows, there are changes to some EU tertiary laws (good examples highlighted in **Chapter 1**) that do materially affect the impact of legislation on the environment. Separating the 'wheat from the chaff' is painstaking work, but necessary.

Divergences in quantifiable standards are easier to spot

It is often far easier to pinpoint some divergences than others. This is particularly the case when it involves numerical standards. A change, for example, to a quality standard for emissions to air or water are easier to see than a change to a process or procedural standard. It is also sometimes easier to grasp its significance and clearly explain why this is important for Scotland.

There are limits as to what analysing legal divergence/ alignment can achieve

Highlighting legislative divergence is important, but ultimately meeting environmental standards will depend on factors including the quality and strength of indigenous institutions, the robustness of governance (including also oversight functions performed by bodies like ESS), the availability and accessibility of data and information, regular monitoring, and the likelihood of sanctions, amongst others. Some of the key differences (and similarities) between Scotland and the EU will not necessarily show up in an analysis of legislative divergence. Regular exchange between ESS with equivalent bodies elsewhere in the UK and the EU may help it get a better sense of the extent to which there is alignment or divergence in law. Furthermore, it is worth stressing that, as the Cabinet Secretary for the Constitution, External Affairs and Culture recently said in a letter to Scottish Parliament (see **Chapter 1**), changes in policy, as distinct from changes to legislation, can also achieve the desired effect, i.e. a desired environmental outcome.

Be highly selective to conserve resources

It is possible to track divergence between Scotland's environmental laws, standards and regulation and that of the EU as well as monitor international best practice developments in environmental regulation more broadly. This report makes suggestions about how to do this in a consistent way at a reasonable level of effort and cost. However, the resource costs of analysing Scotland-EU alignment/divergence or international best practice in environmental regulation needs to be kept in mind. Analysing long term consequences across the board in a robust way requires a level of commitment that may not match the resources available for such an exercise within ESS, and this points to the value of a selective approach focused on the most consequential issues and kept under close review as circumstances develop.

ANNEX 1
A STRUCTURED APPROACH TO ASSESSING DIVERGENCE ('ENVIRONMENTAL CRIME' CASE STUDY)

As outlined in Chapter 5, a key element of this project is developing a methodology that allows ESS to *replicate* the assessment of the extent to which there is alignment/ divergence between environmental standards, laws and regulations in Scotland and those in the EU, on a recurring basis, potentially on a five-year cycle.

In order to develop case studies that are replicable, this annex offers a structured approach with standardised questions intended to achieve a consistent approach to assessing identified divergences found between environmental standards, laws or regulations in Scotland with the EU, as opposed to the case studies outlined in **Chapter 3**. By comparing and contrasting individual legislative provisions in new or updated EU laws with those in legislative acts in Scotland in the same field, an assessment can begin to be made of the extent, and significance of the expected divergence and from this an initial assessment of potential impact can be derived. A proforma template for structuring this approach is shown below.

Figure 4 Proforma Template to assess alignment/divergence between Scotland's environments standards, laws and regulations

v. December 2025

Subject matter summary	
EU legislation (short title)	***Environmental Crime Directive***
EU legislation (full title)	Directive (EU) 2024/1203 of the European Parliament and of the Council of 11 April 2024 on the protection of the environment through criminal law and replacing Directives 2008/99/EC and 2009/123/EC
Link to Consolidated Text in Official Journal	https://eur-lex.europa.eu/legal-content/EN/AUTO/?uri=CELEX:02024L1203-20240430
Topic area (e.g. Water, Air, Nature & Land Management, Pollution & Resources etc.)	*Cross Cutting*
Short summary of EU legislation incl., core objective (max 250 words)	This Directive establishes minimum rules for EU member states with regard to the definition of criminal offences and penalties in order to protect the environment more effectively, as well as with regard to measures to prevent and combat environmental crime and to effectively enforce Union environmental law. The Directive is to be transposed and implemented by 21 May 2026.

Alignment/Divergence assessment summary (incl. a commentary on impact)
See summary in report.

Comparison of EU Environmental Crime Directive (2024/1203) with Scottish standards, laws and regulations	
European Union	***Scotland***
Article number & subject matter (where relevant) [xiv]	**Corresponding environmental standards, law and regulations in Scotland**
Article 3 – Criminal Offences	
The ECD broadens the scope of offences listed with which contravention would be classed as criminal behaviour from 8 to 20 including: a) *Emissions to air, soil and water*, b) *Placing on the market of Products*, c) *REACH*, d) *Mercury*, e) *Environmental Impact Assessment*, f) *Waste (collection, transport, treatment disposal incl. hazardous)*, g) *Trans-Shipment of Waste*, h) *Ship Recycling*, i) *Pollution from ships*, j) *Industrial pollution*, k) *Offshore oil and gas*, l) *Radioactive substances*, m) *Water abstraction*, n) *Habitats & Birds Directives (killing, destruction, possession, sale of species)*, o) *Trade in wild fauna and flora*, p) *Trade in deforested products*, q) *Habitats Directive (deterioration of habitats within a protected site or disturbance of species)*, r) *Invasive Alien Species*, s) *Ozone Depleting Substances*, and t) *Fluorinated Gases*. **Qualified offences (& the concept of 'Ecocide')** Article 3 (sub-section 3) also refers to a new category of offence, a 'qualified offence' which is described as, "destruction of, or widespread and substantial damage which is either irreversible or long-lasting to…" an ecosystem or habitat within a protected site or to quality of air, soil or water. These are punishable with higher penalties (see Article 5). *(cont.)*	Offences listed in the 2024 ECD can be escalated to the Crown Office and Procurator Fiscal Service (COPFS) and as such can be taken forward as criminal offences already, but are, "…generally be reserved for offences that are most serious or where there is evidence of wider criminality".[145] In this sense there is already alignment. **Qualified offences (& the concept of 'Ecocide')** The Ecocide (Scotland) Bill[146] as introduced to Parliament in May 2025 defines ecocide if there is 'severe environmental harm', if there is intention and recklessness in causing such harm and is severe if it is either widespread or has long term effects (Part 1, Section 1 & 2). The terminology is similar if not the same. The Bill also proposes a penalty of imprisonment not exceeding 20 years or imprisonment and a fine (Part 1, Section 5).

xiv *Inclusion of, and commentary on all Articles of EU legislation may not be necessary. Judgement should be exercised as to which are the most relevant.*

Comparison of EU Environmental Crime Directive (2024/1203) with Scottish standards, laws and regulations	
European Union	***Scotland***
Article number & subject matter (where relevant) [xiv]	**Corresponding environmental standards, law and regulations in Scotland**
What is notable is that a reference to the term 'ecocide' is included in the accompanying explanatory statement of the ECD in relation to a 'qualified offence' however it stops short of including the term ecocide within the legal text itself.	
Article 4 – Inciting, aiding and abetting and attempt [to commit a criminal offence].	
Inciting, aiding and abetting and attempt to commit a criminal offence outlined in Article 3 is punishable as a criminal offence.	Scotland already has well established laws in this regard.
Article 5 – penalties for natural persons	
"...criminal offences referred to in Articles 3 and 4 are punishable by effective, proportionate and dissuasive criminal penalties." Different imprisonment terms are stipulated for each of the offences listed in Article 3 and states that non-criminal penalties may also be imposed (listed in Article 5.3). Most of the penalties listed are punishable by a maximum term of imprisonment of at least 3 or 5 years depending on which of the actions it relates to, whether it is long lasting, the extent of the damage, and/or the reversibility of the damage. Where criminal offences occur that cause the death of a person, there are higher penalties stipulated.	Offences linked to The Environmental Authorisations (Scotland) Regulations 2018 for example relating to several of the regimes listed in the ECD (e.g. emissions to air, soil and water, waste and industrial pollution) can be punished on summary conviction of £40,000 or 12-month imprisonment or on conviction on indictment to a fine or imprisonment of 5 years. In this sense there is alignment between approaches. There are some differences though for example: *Fluorinated Gases and Ozone-Depleting Substances* – fine only (for summary conviction and conviction on indictment). *Wildlife and Countryside Act 1981* penalties are less severe than penalties stipulated in the ECD (6 months to 2 years and/or a fine). The introduction of recent, Animals and Wildlife (Penalties, Protections and Powers) (Scotland) Act 2020, strengthened penalties though in some cases are not aligned with the ECD. *(cont.)*

Comparison of EU Environmental Crime Directive (2024/1203) with Scottish standards, laws and regulations	
European Union	***Scotland***
Article number & subject matter (where relevant) [xiv]	**Corresponding environmental standards, law and regulations in Scotland**
	Many of the non-criminal penalties listed in the ECD are already available to authorities in Scotland e.g. obligating offenders to restore damage to the environment, pay compensation for damage caused, withdraw permits, issue fines.
Article 6 – Liability of legal persons	
Member States to ensure legal persons can be held liable for criminal offences listed in the directive	Several Scottish environmental laws already apply in regard to bodies corporate, such The Environmental Authorisations (Scotland) Regulations 2018. The Regulatory and Reform Act 2014 also established a corporate offending provision in relation to environmental harms.
Article 7 – penalties for legal persons	
"...measures to ensure that a legal person ... is punishable by effective, proportionate and dissuasive criminal or non-criminal penalties or measures." "...Member States shall take the necessary measures to ensure that the maximum level of such fines is not less than:" For offences (a) to (l) and (p), (s) and (t) in Article 3, 5% worldwide turnover or €40 million. For offences (m) to (o), (q) and (r), 3% worldwide turnover or €24 million.	The Regulatory and Reform Act 2014 established a corporate offending provision in relation to environmental harms and where it is attributable to a 'responsible official' e.g. a company director or manager. The penalty on summary conviction is a fine not exceeding £40,000, imprisonment not exceeding 12 months or both; or on conviction on indictment to a fine imprisonment not exceeding 5 years or both.
Article 10 – Freezing and confiscation	
"Member States shall take the necessary measures to enable the tracing, identifying, freezing and confiscation of instrumentalities and proceeds from the criminal offences..."	Confiscation and forfeiture powers in Scotland have been in place for quite some time, enabling authorities to remove the 'proceeds of crime' from offenders.

Comparison of EU Environmental Crime Directive (2024/1203) with Scottish standards, laws and regulations	
European Union	***Scotland***
Article number & subject matter (where relevant) [xiv]	**Corresponding environmental standards, law and regulations in Scotland**
Article 13 – Investigative tools Article 17 – Resources	
Both articles stipulate that authorities should be given sufficient tools / resources to detect, investigate and prosecute environmental crime.	It is unclear how the European Commission would determine how or what the level of 'sufficiency' is with regard to investigative tools and resources to prosecute environmental crime. Scotland itself would need to determine the level of resources required to 'detect, investigate and prosecute' environmental crime (if it were seeking to comply with these EU provisions). The establishment of the Wildlife and Environmental Crime Unit in the COPFS in 2013 has arguably aided and enhanced the capabilities for prosecution of crimes.
Article 15 – Publication of information in the public interest and access to justice for the public concerned	
	The Regulatory and Reform Act 2014 (and The Environmental Regulation (Enforcement Measures) (Scotland) Order 2015) enables SEPA for example to publish notices of enforcement action it takes. SEPA's 'Communicating Penalties and Undertakings Policy' sets out when and how such penalties will be communicated to the public.
Article 19 – Coordination and Cooperation between competent authorities	
'…establish appropriate mechanisms for coordination and cooperation at strategic and operational levels among all their competent authorities involved in the prevention of and the fight against environmental criminal offences'	SEPA and the COPFS for example have an established 'joint working protocol'[147] relating to enforcement of environmental crime. SEPA's decision making on taking enforcement action is supported by the Lord Advocate's guidance.[148] NatureScot is a partner in the Partnership for Action against Wildlife Crime in Scotland.

Comparison of EU Environmental Crime Directive (2024/1203) with Scottish standards, laws and regulations	
European Union	***Scotland***
Article number & subject matter (where relevant) [xiv]	**Corresponding environmental standards, law and regulations in Scotland**
Article 21 - National Strategy	
Publish a national strategy on combatting environmental criminal offences. Member States to publish these by 21 May 2027.	There is no Scottish or UK wide 'national strategy' on environmental crime which the new directive calls for. Environmental crime in the UK is a devolved matter. The Scottish Government's 2020 Environment Strategy[149] does not explicitly refer to 'environmental crime' or how it would go about tackling it[150] including by stating how competent authorities will coordinate and cooperate.
Article 22 – Statistical data	
"...ensure that a system is in place for the recording, production and provision of anonymised statistical data on the reporting, investigative and judicial stages in relation to the criminal offences"	The Scottish Environment Protection Agency publishes information on penalties and undertakings[151] and data. Wildlife related crime is published by Scottish Government.[152] SEPA's Regulation Reports, which detail what enforcement action has been taken by the agency in a given year, are available upon request but not routinely published on its website.[153] The Crown Office and Procurator Fiscal Service, responsible for prosecuting criminal offences, does not appear to routinely publish statistical data on environment-related crime which the new directive would require.

ENDNOTES

1 Environmental Standards Scotland (2025) *ESS Draft Strategy 2026-2031 for Consultation* (Section 2.3)(**Link to full document**). Note to reader: this is a draft strategy at time of writing.

2 This is set out in ESS' current Strategic Plan 2022-25 (Section 6.2)(**Link to full document**). It is echoed in the 2026-2031 Strategy (Section 2.3)(**Link to full document**).

3 The Scottish Parliament (2025) 'EU Law Tracker', **Link to web page** (accessed 06 January 2026).

4 There are fourteen divergence and regulatory trackers on the UK in a Changing Europe website dating from 2021. The latest tracker can be found at: Reland, J. (2025) *UK-EU Divergence Tracker Q3 2025*, **Link to full document**.

5 A sample of IEEP UK's tracker can be found here: IEEP UK (2025) 'Tracking Legislation', **Link to web page** (accessed 8 October 2025). However, it should be noted that IEEP UK do not routinely publish their legislative tracker.

6 Typically, IEEP UK briefings are 20 pages long. Examples include: on the Industrial Emissions Directive (**Link to briefing**), on Wastewater (**Link to briefing**), Environmental Crime Directive (**Link to briefing**).

7 Environmental Standards Scotland (2022) *2022-25 Strategic Plan*, p.34, **Link to full document**.

8 2008 Air Quality Directive, 2008/50/EC, **Link to full document**.

9 ChemTrust (2025) *Table of the differences in UK/EU protections from harmful substances*, Link to full document.

10 Green Alliance (2025) *What has happened to British chemicals regulation since Brexit?*, **Link to full document**.

11 Correspondence between Angus Robertson MSP, Cabinet Secretary for the Constitution, External Affairs and Culture and the Scottish Parliament committee on Constitution, Europe, External Affairs and Culture in October 2024 confirmed that the sheer weight of change in EU tertiary law (delegated and implementing laws) under the 'parent' secondary EU laws means that further scrutiny of the impact of the consolidated text on Scotland was necessary. **Link to correspondence**.

12 Commission Regulation (EU) 2021/57 of 25 January 2021 amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards lead in gunshot in or around wetlands, **Link to full document**.

13 The Environmental Protection (Restriction on Use of Lead Shot)(Scotland)(No. 2) Regulations 2004, **Link to full document**.

14 Gravey, V, Jordan, A., and Burns, C. (2025) 'Lead regulation comes shooting back: dynamic (dis)alignment', *Brexit & Environment*, 15 August, **Link to web page** (accessed 27 December 2025).

15 Gov.UK, UK REACH restriction for lead in ammunition, 27 June 2025, **Link to web page** (accessed 16 December 2025).

16 Draft Commission Regulation (EU) amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards lead in gunshot in or around wetlands, **Link to full document**.

17 European Commission (2025) *Commission Work Programme 2026*, **Link to full document**.

18 A UK Government policy paper issued by the Cabinet Office on the 17 November 2025 summarised its views on the work programme. **Link to full document** (accessed 10 December 2025).

19 European Commission (2020) *Circular Economy Action Plan*, **Link to full document**.

20 European Commission (undated) *The European Ocean Pact*, **Link to web page** (accessed 11 December 2025).

21 The Scottish Parliament (undated) *Devolved and Reserved Powers*, **Link to web page** (accessed 16 December 2025).

22 The Pollution Prevention and Control (Scotland) Regulations 2012, **Link to full document**.

23 House of Commons Library, Reserved matters in the United Kingdom, **Link to full document**, pp.16-21.

24 Directive (EU) 2024/3019 of the European Parliament and of the Council of 27 November 2024 concerning urban wastewater treatment (recast), **Link to full document**.

25 Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment, **Link to full document**.

26 IEEP UK (2024) *Diverging wastewater policy: the implications of changes to EU policy for the UK*, **Link to full document**.

27 The Urban Wastewater Treatment (Scotland) Regulations 1994, **Link to full document**.

28 Martin, G. (2025) Letter to Mark Roberts, Environmental Standards Scotland, **Link to full document**.

29 Directive (EU) 2024/3019 of the European Parliament and of the Council of 27 November 2024 concerning urban wastewater treatment (recast), **Link to full document**.

30 Environmental Standards Scotland (2024) *Storm overflows – an assessment of spills, their impact on the water environment and the effectiveness of legislation and policy*, **Link to full document**.

31 European Parliament (2024) 'New EU rules to improve urban wastewater treatment and reuse', Press Release, 10 April, **Link to full document** (accessed 10 December 2025).

32 The Public Water Supplies (Scotland) Amendment Regulations 2022, **Link to full document**.

33 Policy Note: The Public Water Supplies (Scotland) Amendment Regulations 2022, **Link to full document**.

34 Scottish Government (2025) *Commissioning the Strategic Review of Water Charges: 2027-2033*, **Link to full document**.

35 Scottish Government (2025) *Drinking Water policy development overview: PDSG – April 2025*, **Link to full document**.

36 Scottish Water (undated) 'Private Water Supplies', **Link to web page** (accessed 05 January 2026).

37 *Ibid*.

38 Scottish Government (2023) 'Private Water Supply Working Group: EIR release', **Link to web page** (accessed 05 January 2026).

39 Scottish Government (2025) *Drinking Water policy development overview: PDSG – April 2025*, **Link to full document**.

40 Commission Implementing Decision establishing a watch list of substances and compounds of concern for water intended for human consumption, **Link to full document**.

41 It should be noted that this document was obtained through an environmental information request under the Environmental Information (Scotland) Regulations 2004 (**Link to web page**). The information can be found here: Scottish Government (2025) *Drinking Water policy development overview: PDSG – April 2025*, **Link to full document**.

42 *Ibid*.

43 *Ibid*.

44 DWQR (2024) *Drinking Water Quality in Scotland 2023 DWQR Annual Report – Public Supplies*, **Link to full document**.

45 DWQR (2024) *Drinking Water Quality in Scotland 2023 DWQR Annual Report – Public Supplies*, **Link to full document**.

46 WHO (2022) *Lead in drinking-water: Health risks, monitoring and corrective actions. Technical brief*, **Link to full document**.

47 European Commission (undated) 'Drinking water', **Link to web page**.

48 Nature Restoration Regulation, **Link to full document**, (accessed 16 December 2025).

49 EU Biodiversity Strategy, **Link to full document**, (accessed 16 December 2025).

50 IEEP & Ecologic (2023) 'Benefits of nature restoration: A new series of policy briefs', **Link to web page** (accessed 27 January 2026).

51 Our Nature, Our Business (2023) 'Business Statement ahead of the final votes on the Nature Restoration Law', **Link to website**, (accessed 06 January 2026).

52 IEEP UK, Divergence of environmental policy post Brexit – a comparison of biodiversity targets emerging in the EU and UK, **Link to Report**.

53 United Nations (undated) 'Land Use, Land-Use Change and Forestry (LULUCF)', **Link to web page** (accessed 15 December 2025).

54 Regulation (EU) 2023/839 of the European Parliament and of the Council of 19 April 2023 amending Regulation (EU) 2018/841 as regards the scope, simplifying the reporting and compliance rules, and setting out the targets of the Member States for 2030, **Link to full document**.

55 Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, **Link to full document**.

56 European Commission (2025) 'Land use sector', **Link to web page** (accessed 15 December 2025).

57 European Commission (2025) 'Land Use Sector: Policy Planning', **Link to web page** (accessed 06 January 2026).

58 UK Government (2021) *Explanatory Memorandum to the Climate and Energy (Revocation)(Eu Exit) Regulations 2021 2021 No. 519*, **Link to full document**.

59 Climate Change Act 2008, **Link to full document**.

60 Scottish Government (2025) *Draft Climate Change Plan: 2026-2040*, Annex 3, **Link to full document**.

61 Scottish Government (2025) 'Draft Climate Change Plan', **Link to web page** (accessed 15 December 2025).

62 The UK National Atmospheric Emissions Inventory (2026) 'Home Page', **Link to web page**.

63 Regulation (EU) 2023/839 of the European Parliament and of the Council of 19 April 2023 amending Regulation (EU) 2018/841 as regards the scope, simplifying the reporting and compliance rules, and setting out the targets of the Member States for 2030, **Link to full document**.

64 Article 4 of Regulation (EU) 2023/839 of the European Parliament and of the Council of 19 April 2023 amending Regulation (EU) 2018/841 as regards the scope, simplifying the reporting and compliance rules, and setting out the targets of the Member States for 2030, **Link to full document**.

65 *Ibid*.

66 Scottish Government (2025) *Scotland's Draft Climate Change Plan: 2026–2040*, **Link to full document**.

67 Scottish Government (2020) *Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update*, **Link to full document**.

68 Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, **Link to full document**.

69 European Commission (undated) '2050 long-term strategy', **Link to web page** (accessed 06 January 2026).

70 Climate Change Committee (2025) 'Response to Scottish Government's Climate Change Plan', **Link to web page** (accessed 06 January 2026).

71 Galgani, G. and Rangel-Buitrago, N. (2024) 'White tides: The plastic nurdles problem', *Journal of Hazardous Materials*, Vol. 470, **Link to full document**.

72 Tullis, N. (2025) 'EU Adopts First Regional Framework to Stop Plastic Pellet Pollution', *Pew Charitable Trusts*, **Link to web page** (accessed 06 January 2026).

73 Sewwandi, M., Keerthanan, S., Perera, K. I., and Vithanage, M. (2023) 'Plastic Nurdles in Marine Environments Due to Accidental Spillage' in Vithanage, M. and Prasad, M. N. V. (eds.) *Microplastics in the Ecosphere: Air, Water, Soil, and Food*. **Link to full document**.

74 Ramb, M. et al. (2025) 'EU regulations on Microplastics: Big steps against small particles?, *Freshfields Sustainability*, 1 October, **Link to web page** (accessed 06 January 2026).

75 Tullis, N. (2025) 'EU Adopts First Regional Framework to Stop Plastic Pellet Pollution', Pew Charitable Trusts, **Link to web page** (accessed 06 January 2026).

76 International Maritime Organization (2024) *Recommendations for the carriage of plastic pellets by sea in freight containers*, MEPC.1/Circ.909. **Link to full document**.

77 Scottish Government (2022) *Marine litter strategy*, **Link to full document**.

78 UK Government (2025) *Marine strategy part three: 2025 UK programme of measures*, **Link to full document**.

79 Environmental Standards Scotland (2024) *Marine litter – an assessment of sources, controls and progress in Scottish seas*, **Link to full document**.

80 Letter from Scottish Government to ESS (in response to Marine Litter analytical report), **Link to web page**.

81 European Commission (2023) 'Commission Staff Working Document Impact Assessment Report Combatting microplastic pollution in the European Union Accompanying the document Proposal for a Regulation of the European Parliament and of the Council on preventing plastic pellet losses to reduce microplastic pollution', **Link to full document**.

82 *Ibid*.

83 Regulation (EU) 2025/2365 of the European Parliament and of the Council of 12 November 2025 on preventing plastic pellet losses to reduce microplastic pollution, **Link to full document**.

84 Russell, M. and Webster, L. (2021) 'Microplastics in sea surface waters around Scotland', *Marine Pollution Bulletin*, Vol. 166, **Link to full document**.

85 Eriksson, C. and Burton, H. (2003) 'Origins and Biological Accumulation of Small Plastic Particles in Fur Seals from Macquarie Island', Vol. 32, **Link to full article**.

86 Kühn, S., Rebolledo, E. L. B., and van Franeker, J.A. (2015) 'Deleterious effects of litter on marine life' in Bergmann, M., Gutow, L. and Klages, M. (eds.) *Marine Anthropogenic Litter*, pp. 75-116, **Link to full document**.

87 Setälä, O., Norkko, J., and Lehtiniemi, M. (2016) 'Feeding type affects microplastic ingestion in a coastal invertebrate community', *Marine Pollution Bulletin*, Vol. 102, **Link to full document**.

88 Rochman, C. M., Hoh, E., Kurobe, T., and Teh, S. J. (2013) 'Ingested plastic transfers hazardous chemicals to fish and induces hepatic stress', *Scientific Reports*, Vol. 3, **Link to full document**.

89 Smith, M., Love, D. C, Rochman, C.M, and Neff, R.A. (2018) 'Microplastics in Seafood and the Implications for Human Health', *Food, Health and the Environment*, Vol. 5, **Link to full document**.

90 Friends of the Earth Scotland (2024) 'Nurdles: The tiny pellets polluting Scotland', 16 December, **Link to web page** (accessed 06 January 2026).

91 Dagorn, G., Aubert, R., Horel, S., Martinon, L and Steffen, T. (2023) 'Forever pollution: Explore the map of Europe's PFAS contamination', Le Monde, 23 February, **Link to full document**.

92 The Forever Pollution Project (undated) 'The Cost of Remediation', **Link to web page** (accessed 06 January 2026).

93 Commission Regulation (EU) 2025/1988 of 2 October 2025 amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council as regards per-and polyfluoroalkyl substances in firefighting foams, **Link to full document**.

94 European Commission Representation in Cyprus (2026) 'Commission restricts the use of 'forever chemicals' in firefighting foams', 03 October, **Link to web page** (accessed 05 January 2026).

95 HSE (2025) Q&As on *PFAS in firefighting foams (FFF) restriction proposal*, **Link to full document**.

96 HSE (2025) 'PFAS in firefighting foam (FFF) restriction proposal', 18 August, **Link to web page** (accessed 06 January 2026).

97 HSE (2025) *Annex 15 Restriction Report. Proposal for a restriction: Per and polyfluoroalkyl substances (PFAS) in firefighting foams*. **Link to full document**.

98 *Ibid*.

99 The Persistent Organic Pollutants (Amendment) (EU Exit) Regulations 2020, **Link to full document**.

100 Ehsan, M. N. et al. (2024) 'PFAS contamination in soil and sediment: Contribution of sources and environmental impacts on soil biota', *Case Studies in Chemical and Environmental Engineering*, Vol. 9, **Link to full document**.

101 Dauchy, X., Boiteux, V., Bach, C., Rosin, C. and Munoz, J. (2017) 'Per- and polyfluoroalkyl substances in firefighting foam concentrates and water samples collected near sites impacted by the use of these foams', *Chemosphere*, Vol. 183, **Link to full document**.

102 HSE (2025) *Q&As on PFAS in firefighting foams (FFF) restriction proposal*, **Link to full document**.

103 Neill, P. (2024) 'God's Own Dark Waters: How Bentham became the most polluted place in the UK', *ENDS Report*, 24 May, **Link to web page** (accessed 06 January 2026).

104 Hosea, L. and Salvidge, R. (2025) 'Bloodletting recommended for Jersey residents after PFAS contamination', *The Guardian*, 16 January, **Link to web page** (accessed 06 January 2026).

105 European Environment Agency (2024) 'What are PFAS and how are they dangerous for my health?', 30 July, **Link to web page** (accessed 06 January 2026).

106 Mazumder, N. et al. (2023) ' Firefighters' exposure to per-and polyfluoroalkyl substances (PFAS) as an occupational hazard: A review', *Frontiers in Materials*, Vol. 10, **Link to full document**.

107 HSE (2025) *Annex 15 Restriction Report. Proposal for a restriction: Per and polyfluoroalkyl substances (PFAS) in firefighting foams*. **Link to full document**.

108 Reinikainen, J., Perkola, N., Äystö, L. and Sorvari, J. (2022) 'The occurrence, distribution, and risks of PFAS at AFFF-impacted sites in Finland', *Science of the Total Environment*, **Link to full document**.

109 HSE (2025) *Annex 15 Restriction Report. Proposal for a restriction: Per and polyfluoroalkyl substances (PFAS) in firefighting foams*. **Link to full document**.

110 Vendl, C. et al. (2024) 'Profiling research on PFAS in wildlife: Systematic evidence map and bibliometric analysis' in *Ecological Solutions and Evidence*, Vol. 5, **Link to full document**.

111 Dimitrakopoulou, M. et al. (2024) 'Comprehensive analysis of PFAS presence from environment to plate', *npj Science of Food*, Vol. 8, **Link to full document**.

112 HSE (2025) *Annex 15 Restriction Report. Proposal for a restriction: Per and polyfluoroalkyl substances (PFAS) in firefighting foams*. **Link to full document**.

113 The Energy Efficiency (Building Renovation and Reporting) Regulations 2014 implemented key parts of the 2012 Energy Efficiency Directive into UK law, but this was revoked at the point of EU Exit.

114 European Commission (undated) 'Energy Efficiency First principle', **Link to web page** (accessed 06 January 2026).

115 BEIS (2020) *International comparisons of household energy efficiency*, **Link to full document**.

116 Scottish Government (2023) 'Social housing net zero standard: consultation', **Link to web page**, (accessed 15/12/2025).

117 Scottish Government (2025) *Draft Buildings (Heating and Energy Performance) and Heat Networks (Scotland) Bill*, **Link to full document**.

118 European Commission (2024) 'Questions and Answers on the revised Energy Performance of Buildings Directive (EPBD), **Link to web page** (accessed 06 January 2026).

119 Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019, **Link to full document**.

120 Scottish Government (2021) 'Fuel Poverty Strategy', **Link to web page** (accessed 06 January 2026).

121 The Assessment of Energy Performance of Non-domestic Buildings (Scotland) Regulations 2016, **Link to full document**.

122 Scottish Government (2017) *Climate change: evidence review of mitigation options in the Built Environment sector*, **Link to full document**.

123 Public Health Scotland (2024) 'Climate change, energy efficiency and housing retrofit', **Link to web page** (accessed 06 January 2026).

124 Edwards, R. and Dobson, P. (2023) 'Polluters let off as Sepa cuts legal action threefold', *The Ferret*, 23 July, **Link to web page** (accessed 04 January 2026).

125 Examples can be found here: **Link to website**.

126 Scottish Government (2015) *Wildlife Crime Penalties Review Group*, **Link to full document** (accessed 04 January 2026).

127 Scottish Sentencing Council (2020) *Literature Review of Sentencing of Environmental and Wildlife Crimes*, **Link to full document** (accessed 04 January 2026).

128 Examples can be found in the Literature Review of Sentencing of Environmental and Wildlife Crimes (**Link to full document**), an Evaluation on Implementation of the 2008 ECD (**Link to full document**) and the Impact Assessment (**Link to Report**), UNEP Environmental Rule of Law (**Link to full document**) as well as the Policy Memorandum linked to the Ecocide (Scotland) Bill (**Link to full document**). A 2014 report for SEPA focused on waste crime specifically (**Link to full document**).

129 Scottish Parliament (2026) 'Ecocide (Scotland) Bill', **Link to web page**, (accessed 19 December 2025).

130 Environmental Standards Scotland (2025) *ESS Strategy 2026-2031: For Approval by the Scottish Parliament*, **Link to full document**.

131 Air Quality Standards (Scotland) Regulations 2010, last updated in 2016 (Link to legislation **here** and **here**).

132 *Ibid*.

133 For details on these, see the World Health Organization's 'Air Quality Standards database: interactive tool', **Link to web page** (accessed 09 October 2025).

134 Drinking Water Directive (2020/2184), **Link to full document**.

135 Bekendtgørelse om vandkvalitet og tilsyn med vandforsyningsanlæg [Executive Order on Water Quality and Supervision of Water Supply Facilities], **Link to full document**.

136 *Ibid*.

137 Environmental Standards Scotland (2024) *The risks to Scotland's soils: a scoping report*, **Link to full document**.

138 Environmental Standards Scotland (2024) *Marine litter – an assessment of sources, controls and progress in Scottish seas*, **Link to full document**.

139 Environmental Standards Scotland (2024) *Particulate Matter in Scotland*, **Link to full document**.

140 Environmental Standards Scotland (2024) *Storm overflows in Scotland*, **Link to full document**.

141 The Scottish Parliament (2025) 'EU Law Tracker', **Link to web page** (accessed 06 January 2026).

142 Five such sets of reports have been published. Four reports are posted on the CEEAC'c Continuity Act webpage of the Scottish Parliament, **Link to web page**, (accessed 16 December 2025). The fifth, and latest report is published on the Scottish Parliament's database of correspondence, **Link to full document** (accessed 21 December 2025).

143 The Scottish Parliament (2025) 'EU Law Tracker', **Link to web page** (accessed 06 January 2026).

144 Gravey, V, Jordan, A., and Burns, C. (2025) 'Lead regulation comes shooting back: dynamic (dis)alignment', *Brexit & Environment*, 15 August, **Link to web page** (accessed 27 December 2025).

145 Scottish Environment Protection Agency (2017) *Enforcement Report 2016-2017*, **Link to full document** (accessed 04 January 2026).

146 Scottish Parliament (2026) 'Ecocide (Scotland) Bill', **Link to web page**, (accessed 19 December 2025).

147 SEPA/COPFS (2006) *Protocol COPFS and SEPA for Submission, Processing and Monitoring of Prosecution Reports*, **Link to full document** (accessed 02 January 2026).

148 SEPA (2016) *Lord Advocates guidelines to SEPA: Use of enforcement measures under the Regulatory Reform (Scotland) Act 2014*, **Link to full document** (accessed 02 January 2026).

149 Scottish Government (2020) *The Environment Strategy for Scotland: Vision and Outcomes*, **Link to full document** (accessed 02 January 2026).

150 The draft revised Environmental Strategy 2025 (**Link to web page**) does not refer to environmental crime either.

151 SEPA (2026) 'Penalties and Undertakings', **Link to web page** (accessed 02 January 2026)

152 The latest report is from 2023. See: Scottish Government (2023) *Wildlife Crime in Scotland 2023*, **Link to full document** (accessed 02 January 2026).

153 SEPA (2026) 'Our performance', **Link to web page** (accessed 02 January 2026).

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