Department
for Environment
Food & Rural Affairs

Outcome Indicator Framework for the 25 Year Environment Plan: 2020 Update

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Outcome Indicator Framework for the 25 Year Environment Plan: 2020 update

Summary

In May 2019, we published the Outcome Indicator Framework[1]. It is a comprehensive set of indicators describing environmental change that relates to the 10 goals within the 25 Year Environment Plan[2]. It describes the state of the environment and supports the strengthened framework for monitoring and reporting on environmental improvement which will be introduced through the Environment Bill. We designed the framework using the concept of natural capital, with guidance from stakeholders and experts.

Our 2020 Outcome Indicator Framework report provides an update on these indicators and their development. This update is published alongside the 25 Year Environment Plan Progress Report[3] for 2019-20 which uses the indicators to inform reporting of government's progress against the 10 goals.

The framework contains 66 indicators, arranged into 10 broad themes. The indicators are extensive; they cover all natural capital assets (e.g. land, freshwater) and together they show the condition of these assets, the pressures acting upon them and the provision of services or benefits they provide.

In this report, we provide data corresponding to 38 indicators. This includes statistics for 12 indicators which are newly reported on this year and, where available, updated statistics for indicators previously reported on. Further development of many indicators is required and we continue to review, update and develop these to provide an effective, systematic and comprehensive means for measuring environmental change in England.

[1] *Measuring environmental change: Outcome Indicator Framework for the 25 year environment plan* https://www.gov.uk/government/publications/25-year-environment-plan
[2] *A Green Future: Our 25 Year Plan to Improve Our Environment* https://www.gov.uk/government/publications/25-year-environment-plan
[3] https://www.gov.uk/government/publications/25-year-environment-plan-progress-reports

Section A: Outcome Indicator Framework

Introduction and aim of the Outcome Indicator Framework

The government published the 25 Year Environment Plan in January 2018[2] setting out goals for improving the environment in England. A commitment was made to develop a comprehensive set of indicators to measure environmental change. These indicators help us to show how the environment is changing over time. This will support the assessment of policies and other interventions, including how we are delivering on international and domestic commitments. In particular, it can support the statutory cycle of monitoring, planning and reporting on progress in improving the environment which will be introduced through the Environment Bill.

The Outcome Indicator Framework "Measuring environmental change: Outcome Indicator Framework for the 25 Year Environment Plan"[1], was published in May 2019. Drawing on advice from a wide range of experts and stakeholders, it presented 66 indicators to give a comprehensive view of the environment and how it is changing. The 2019 report set out in detail the purpose of the Outcome Indicator Framework and examples of how the indicators can be used.

The Outcome Indicator Framework has an important role in our longer term understanding of the effectiveness of policies and interventions. The indicators are a systematic means of monitoring environmental change, recognising that complex natural and social systems will respond to change on a range of timescales.

The Outcome Indicator Framework will:

- enable clear communication of important environmental trends in England
- provide a set of indicators which relate to all aspects of the environment and all goals within the 25 Year Environment Plan
- communicate data which gives a picture of the environment and how it's changing - more extensive data and indicators may be available from other sources
- be used for assessment of changes in the natural environment, for example against the goals of the 25 Year Environment Plan, or in applying a natural capital approach

In 2019, we presented data showing trends of environmental change for 27 of the framework indicators. In this 2020 update, we present data for 38 of the indicators.

In the remainder of Section A we describe the structure of the framework, how it can be used, and future developments. Section B includes detailed descriptions for all 66 indicators, including trend data for 38 of them.

Structure of the Outcome Indicator Framework

Outcome indicators are:

- based on a natural capital framework – each indicator is assigned as a condition of, pressure on, or service/benefit from, natural capital
- make best use of existing monitoring programmes
- to be used to show changes in the environment over the period of the 25 Year Environment Plan
- voluntary compliant with the Code of Practice for Statistics and some are official statistics in themselves (see Annex 1: Official statistics)
- reported showing their connections to relevant actions, commitments, targets and strategies as well as links to relevant datasets

The 66 indicators are arranged into 10 broad themes. These are topics that people will generally recognise as relating to different aspects of the environment (e.g. air, water, seas and estuaries, wildlife etc.). Some indicators may be applicable to one or more themes but have been allocated to just one of them. A full list of indicators is provided in Table 1 and a detailed description of each of the indicators are presented in Section B. The 25 Year Environment Plan goals and targets relevant to each indicator are also detailed within these descriptions.

The inclusion of 66 indicators in the framework provides a comprehensive and systematic means to observe and convey environmental change. However, for some purposes it may not be necessary to examine this large number of indicators. Therefore, in the framework we identify a sub-set of the indicators under 16 headlines (see Table 1). The headline indicators relate to key aspects of the environment which are a focus of policy intervention and should make intuitive sense to a wide range of readers. When complete, the framework will present a large amount of information and so we will highlight key indicators under headlines to provide a way to simplify this information and provide clear communication. Further examples on how the headlines and indicators may be used are given in Section B of the 2019 report[1].

Tables 1

A list of indicators showing their grouping by theme and primary goal in the 25 Year Environment Plan. Indicators highlighted in bold are those for which data trends are published in this year's report.

[a] international indicators do not relate to a specific goal.

Air

Indicator title (headline)	**Primary Goal**
A1: Emissions for five key air pollutants (air quality)	Clean air
A2: Emissions of greenhouse gases from natural resource (greenhouse gas emissions)	Mitigating and adapting to climate change
A3: Concentrations of fine particulate matter ($PM_{2.5}$) in the air (air quality)	Clean air
A4: Rural background concentrations of ozone (O_2)	Clean air
A5:Roadside nitrogen dioxide (NO_2) concentrations	Clean air
A6: Exceedance of damaging levels of nutrient nitrogen deposition on ecosystems	Clean air
A7: Area of sensitive habitats exposed to damaging levels of ammonia (NH_3) in the atmosphere	Clean air

Water

Indicator title (headline)	**Primary Goal**
B1: Pollution loads entering waters	Clean and plentiful water
B2: Serious pollution incidents to water	Clean and plentiful water
B3: State of the water environment (water and water environment)	Clean and plentiful water
B4: Condition of bathing water (water and water environment)	Clean and plentiful water
B5: Water bodies achieving sustainable abstraction criteria (water and water environment)	Clean and plentiful water
B6: Natural functions of water and wetland ecosystems	Clean and plentiful water
B7: Health of freshwater assessed through fish populations	Clean and plentiful water

Seas and estuaries

Indicator title (headline)	Primary Goal
C1: Clean seas: marine litter	Minimising waste
C2: Seabed subject to high pressure from human activity	Thriving plants and wildlife
C3: Diverse seas: status of mammals, birds and fish (diversity of our seas)	Thriving plants and wildlife
C4: Diverse seas: condition of seafloor habitats (diversity of our seas)	Thriving plants and wildlife
C5: Diverse seas: condition of pelagic habitats	Thriving plants and wildlife
C6: Diverse seas: status of threatened and declining features (diversity of our seas)	Thriving plants and wildlife
C7: Healthy seas: fish and shellfish populations (health of our seas)	Thriving plants and wildlife
C8: Healthy seas: marine food weds functioning (health of our seas)	Thriving plants and wildlife
C9: Healthy seas: seafloor habitats functioning	Thriving plants and wildlife
C10: Productive seas: fish and shellfish stocks fished sustainably	Using resources from nature more sustainably and efficiently
C11: Productive seas: status of sensitive fish and shellfish stocks	Using resources from nature more sustainably and efficiently

Wildlife

Indicator title (headline)	Primary Goal
D1: Quantity, quality and connectivity of habitats (nature on land and water)	Thriving plants and wildlife
D2: Extent and condition of protected site- land, water and sea (wildlife and wild places)	Thriving plants and wildlife
D3: Area of woodland in England	Thriving plants and wildlife, Enhancing beauty, heritage and engagement
D4: Relative abundance and/or distribution of widespread species (nature on land and water)	Thriving plants and wildlife
D5: Conservation status of our native species (wildlife and wild places)	Thriving plants and wildlife

D6: Abundance and distribution of priority species in England	Thriving plants and wildlife
D7: Species supporting ecosystem functions (nature on land and water)	Thriving plants and wildlife

Natural Resources

Indicator title (headline)	**Primary Goal**
E1: Area of productive agricultural land (production and harvesting of natural resources)	Using resource from nature more sustainably and efficiently
E2: Volume of agricultural production	Using resource from nature more sustainably and efficiently
E3: Volume of inputs used in agricultural production (production and harvesting of natural resources)	Using resource from nature more sustainably and efficiently
E4: Efficiency of agricultural production measured by Total Factor Productivity (production and harvesting of natural resources)	Using resource from nature more sustainably and efficiently
E5: Percentage of the annual growth of trees in English woodlands that is harvested	Using resource from nature more sustainably and efficiently
E6: Volume of timber brought to market per annum from English sources	Using resource from nature more sustainably and efficiently
E7: Healthy soils (production and harvesting of natural resources)	Using resource from nature more sustainably and efficiently
E8: Efficient use of water	Using resource from nature more sustainably and efficiently
E9: Percentage of our seafood coming from healthy ecosystems, produced sustainably	Using resource from nature more sustainably and efficiently

Resilience

Indicator title (headline)	**Primary Goal**
F1: Disruption or unwanted impacts from flooding or coastal erosion (resilience to natural hazards)	Reducing the risks of harm from natural hazards
F2: Communities resilient to flooding and coastal erosion (resilience to natural hazards)	Reducing the risks of harm from natural hazards

F3: Disruption or unwanted impacts caused by drought (resilience to natural hazards)	Reducing the risks of harm from natural hazards

Natural Beauty and Engagement

Indicator title (headline)	**Primary Goal**
G1: Changes in landscape and waterscape character (landscapes and waterscapes)	Enhancing beauty and engagement
G2: Condition of heritage features including designated geological sites and scheduled monuments (landscapes and waterscapes)	Enhancing beauty and engagement
G3: Enhancement of green/blue infrastructure (landscapes and waterscapes)	Enhancing beauty and engagement
G4: Engagement with the natural environment (people enjoying and caring about the natural environment)	Enhancing beauty and engagement
G5: People engaged in social action for the environment (people enjoying and caring about the natural environment)	Enhancing beauty and engagement
G6: Environmental attitudes and behaviours (people enjoying and caring about the natural environment)	Enhancing beauty and engagement
G7: Health and wellbeing benefits (people enjoying and caring about the natural environment)	Enhancing beauty and engagement

Biosecurity, Chemical and Noise

Indicator title (headline)	**Primary Goal**
H1: Abatement of the number of invasive non-native species entering and establishing against a baseline (exotic and invasive non-native species)	Enhancing biosecurity
H2: Distribution of invasive non-native species and plant pests and diseases (exotic and invasive non-native species)	Enhancing biosecurity
H3: Emissions of mercury and persistent organic pollutants to the environment (exposure of people and wildlife to harmful chemicals)	Managing exposure to chemicals
H4: Exposure and adverse effects of chemicals on wildlife in the environment (exposure of people and wildlife to harmful chemicals)	Managing exposure to chemicals
H5: Exposure to transport noise	Enhancing beauty and engagement

Resource Use and Waste

Indicator title (headline)	Primary Goal
J1: Carbon footprint and consume buying choices	Minimising waste, Mitigating and adapting to climate change
J2: Raw material consumption (resource efficiency and waste)	Using resource from nature more sustainably and efficiently
J3: Municipal waste recycling rates	Minimising waste
J4: Residual waste arising by type and sector (resource efficiency and waste)	Minimising waste
J5: Prevent harmful chemical from being recycled (resource efficiency and waste)	Managing exposure to chemicals
J6: Waste crime (resource efficiency and waste)	Minimising waste

International

Indicator title (headline)	Primary Goal
K1: Overseas environmental impacts of UK consumption of key commodities (impacts on the natural environment overseas)	Global impacts
K2: Developing countries better able to protect and improve the environment with UK support (improving the natural environment overseas)	Global impacts
K3: Status of endemic and globally threatened species in the UK Overseas Territories (improving the natural environment overseas)	Global impacts
K4: Extent and condition of terrestrial and marine protected areas in the UK Overseas Territories (improving the natural environment overseas)	Global impacts

Using the framework

The Outcome Indicator Framework is designed to be adaptable for multiple uses. For example, to communicate environmental change or to support management of natural capital. By presenting a wide variety of data in a single location, the framework enables a holistic approach to analysis of environmental issues and decision making.

The concept of natural capital was used to develop the framework. Natural capital is defined as the 'elements of the environment which provide valuable goods and services to people such as clean air, clean water, food and recreation'. A natural capital approach is advocated by the 25 Year Environment Plan as it accounts for all of the different ways the

environment benefits society and so can inform better decision making. A natural capital framework sets out the need to:

1. reduce pressures on natural capital (e.g. pollution or plant disease)
2. improve the state of natural assets (including air, water, land and seas)
3. increase the benefits that we get from those assets

Figure 1 sets out how the 66 outcome indicators can be considered as either a pressure, asset or benefit within the natural capital framework. This classification is not always straightforward since the condition of one natural capital asset (e.g. air quality) may place a pressure on another (e.g. wildlife habitat). It is important to recognise that multiple interactions occur across the indicators and categories. By classifying these indicators in this way, we can also show which direction of change in the indicator reflects an improvement to environment (i.e. a downward trend for pressures and an upward trend for the condition of an asset or the provision of a benefit). This structure is flexible and indicators can be selected as appropriate to the needs of a particular analysis. Several examples of how the indicators may be used to examine specific questions are provided in our first report.

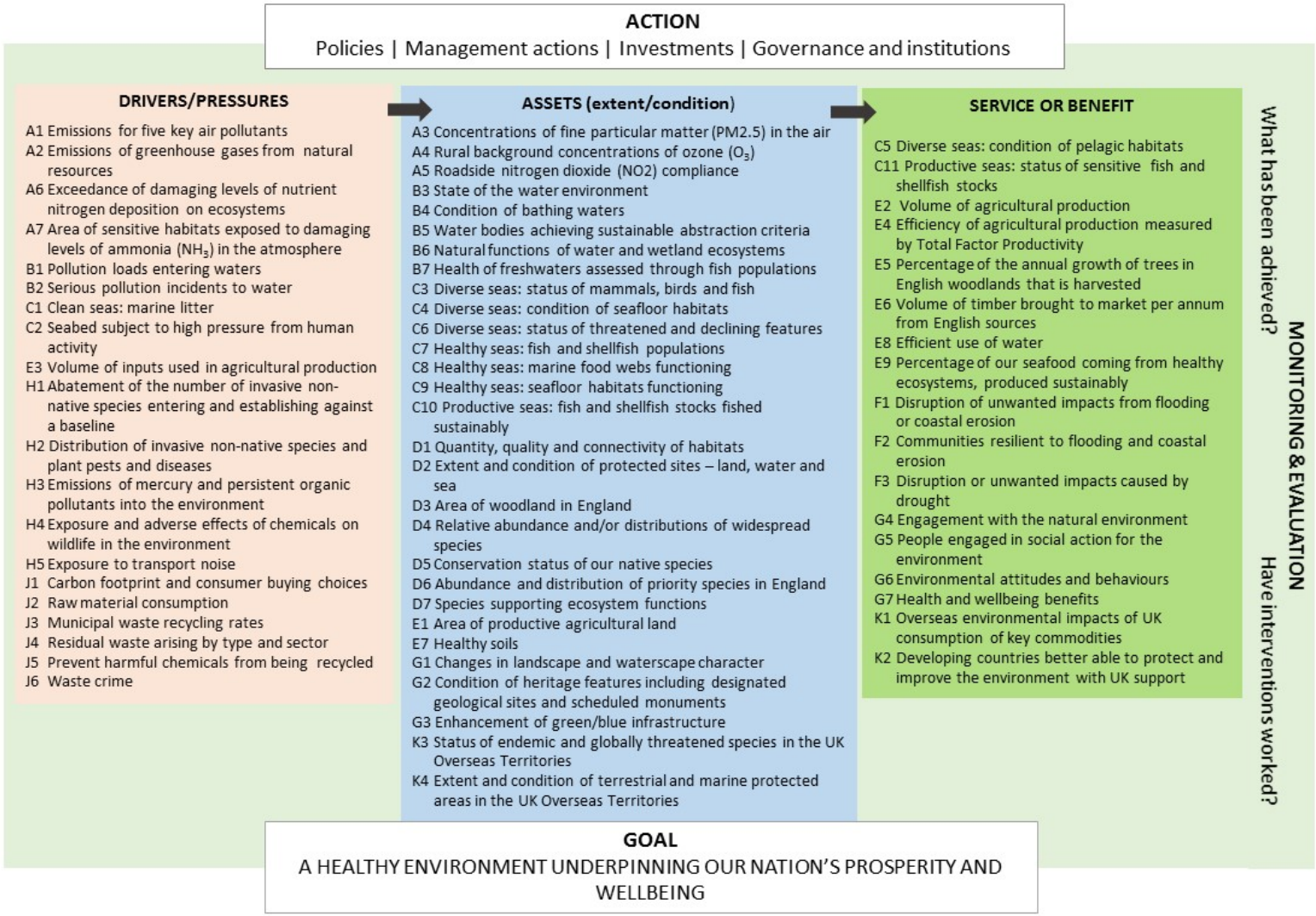


Figure 1 The outcome indicators in a natural capital framework. Each indicator is categorised as a pressure, asset or service/benefit. These interact with each other and are affected by a range of actions. Monitoring and evidence on these indicators can inform appropriate actions with an ultimate goal of maximising a healthy environment, economy and society.

2020 update

This 2020 report includes data on environmental trends for 38 of the 66 outcome indicators spanning across 8 of the 10 themes in the Outcome Indicator Framework. Details of which indicators are reported on are presented in Table 2.

In this report we update trends for 25 of the 27 indicators reported in 2019, reflecting the most recent available data. One of the 2019 indicators does not have new data and one of the 2019 indicators has been transferred to a newly reported indicator where it is more appropriate, further details are given below. The report also includes data for 11 additional indicators and so we report 12 new indicators in total.

Of the 38 indicators presented, 23 are described as interim indicators. Interim indicators are those where further development is expected to extend or improve the reporting against the indicator. Reporting interim indicators means that we can communicate data where it is available, whilst recognising that further development is necessary for the indicator to be complete. Examples of circumstances under which an indicator is considered to be interim include: data needs to be extracted for England from a UK wide dataset, additional data needs to be added to the indicator, or the methods used for deriving an indicator are expected to be developed. The specific reason why an indicator is currently presented as interim is described in the individual indicator description in Section B. Indicators are described as ‘final’ indicators where no further development is expected, notwithstanding the future development of the framework.

Tables 2 The 38 indicators for which data trends are reported. Indicators highlighted in green are newly reported on for 2020 (data was not provided for these indicators in 2019).

[a] indicators developed into final indicators for 2020 reporting (interim status in 2019)
[b] indicators presenting the same data as reported in 2019 (updated data is not available)

Air

Indicator title	2020 status	Latest data (year)
A1: Emissions for five key air pollutants	Final	2017
A2: Emissions of greenhouse gases from natural resource	Interim	2017
A3: Concentrations of fine particulate matter ($PM_{2.5}$) in the air	Final	2018
A4: Rural background concentrations of ozone (O_2)	Final[a]	2018
A5:Roadside nitrogen dioxide (NO_2) concentrations	Final[a]	2018
A6: Exceedance of damaging levels of nutrient nitrogen deposition on ecosystems	Final	2015-17
A7: Area of sensitive habitats exposed to damaging levels of ammonia (NH_3) in the atmosphere	Final	2014-16

Water

Indicator title	2020 status	Latest data (year)
B1: Pollution loads entering waters	Interim	2018
B2: Serious pollution incidents to water	Final	2018
B3: State of the water environment	Interim[b]	2016
B4: Condition of bathing water	Final	2019
B5: Water bodies achieving sustainable abstraction criteria	Final	2018
B7: Health of freshwater assessed through fish populations	Interim	2018

Seas and estuaries

Indicator title	2020 status	Latest data (year)
C1: Clean seas: marine litter	Interim	2015
C4: Diverse seas: condition of seafloor habitats	Interim	2015
C7: Healthy seas: fish and shellfish populations	Interim	2016
C10: Productive seas: fish and shellfish stocks fished sustainably	Interim	2017

Wildlife

Indicator title	2020 status	Latest data (year)
D2: Extent and condition of protected site- land, water and sea	Interim	2019
D3: Area of woodland in England	Final	2019
D4: Relative abundance and/or distribution of widespread species	Final	2018

D6: Abundance and distribution of priority species in England	Interim	2016
D7: Species supporting ecosystem functions	Interim	2016

Natural Resources

Indicator title	2020 status	Latest data (year)
E1: Area of productive agricultural land	Final	2019
E2: Volume of agricultural production	Interim	2018
E3: Volume of inputs used in agricultural production	Interim	2018
E4: Efficiency of agricultural production measured by Total Factor Productivity	Interim	2018
E5: Percentage of the annual growth of trees in English woodlands that is harvested	Final	2018
E6: Volume of timber brought to market per annum from English sources	Final	2018

Natural Beauty and Engagement

Indicator title	2020 status	Latest data (year)
G2: Condition of heritage features including designated geological sites and scheduled monuments	Final	Ongoing from 2009
G4: Engagement with the natural environment	Interim	2018-19
G5: People engaged in social action for the environment	Interim	2017

Biosecurity, Chemical and Noise

Indicator title	2020 status	Latest data (year)
H1: Abatement of the number of invasive non-native species entering and establishing against a baseline	Interim	2018
H2: Distribution of invasive non-native species and plant pests and diseases	Interim	2009-18

Resource Use and Waste

Indicator title	2020 status	Latest data (year)
J1: Carbon footprint and consume buying choices	Interim	2017
J2: Raw material consumption	Interim	2017
J3: Municipal waste recycling rates	Interim	2018-19
J4: Residual waste arising by type and sector	Interim	2017
J6: Waste crime	Interim	2018

A limited number of changes have been made to the indicator descriptions over the last year. These reflect feedback and further consideration and development of the indicators to ensure the most appropriate data are presented. For example, in 2019, two potential approaches to F3 ‘Disruption or unwanted impacts caused by drought’ were outlined, in this year’s report the selected approach is now communicated.

There have been some specific changes to individual indicators after further consideration of their purpose:

Modification of title for B7 from ‘Health of freshwaters assessed through fish stocks’ to ‘Health of freshwaters assessed through fish populations’. The term ‘population’ reflects the intention to develop the indicator to include a wider range of fish species. The previous term ‘stocks’ usually describes fisheries and exploited stock only.

Modification of title for C10 from ‘Productive seas: fish and shellfish stocks safe and environmentally sustainable’ to ‘Productive seas: fish and shellfish stocks fished sustainably’. The revised title clarifies that the indicator assesses whether the UK fish and shellfish stocks are fished sustainably and within *safe* biological limits, and not whether the fish and shellfish stocks are *safe* for human consumption. The levels of contaminants in fish and other seafood for human consumption are assessed in the UK Marine Strategy.

Modification of title for E8 from ‘Sustainable use of water’ to ‘Efficient use of water’. The term efficient more accurately reflects the purpose and scope of this indicator. Sustainability is captured in other indicators, notably B5 ‘Water bodies achieving sustainable abstraction criteria’.

The transfer of data from E9 ‘Percentage of our seafood coming from healthy ecosystems, produced sustainably’ to C10 ‘Productive seas: fish and shellfish stocks fished sustainably’. This revision has taken place because the data are specific to fish and shellfish rather than reflecting the health of the marine ecosystem as a whole. More suitable data will be presented for E9 in future reports.

The use of alternative, more suitable data in J2 ‘Raw material consumption’. There are different ways to measure a country’s material footprint, the choice of which will influence final estimates. The revised indicator provides an England-level estimate disaggregated to 3 categories of material type. The estimates are produced using an environmentally-extended multi-regional input-output model which has the advantage of more accurately capturing material inputs into re-imported products.

For the 2020 indicator descriptions, we retain references to the relevant EU directives. These are still applicable to the time period of data collection and during the Brexit transition period. It is anticipated that in future reports we will instead reference the relevant domestic commitments.

Future development

Currently, some indicators are not yet available to report on and further research is required to determine the most suitable data and methods. We expect additional indicators to be reported in 2021 and subsequently.

In the future the Outcome Indicator Framework will be used for assessments of environmental change. Research into potential assessment approaches is taking place considering appropriate statistical techniques and timeframes. This may focus on the indicator headlines and their corresponding indicators (identified in Table 1). Where possible, a baseline near to 2018 (to align with the publication of the 25 Year Environment Plan) will be used as a reference point to assess change. Longer-term (historic) trends will also be presented for comparison where these data are available. Where suitable time-series are available, we will assess both long-term (>5 year) and recent (latest 5 year) trends. Data series of less than 5 years are likely to show year-to-year fluctuations that are difficult to assess. There are also time lags in the environmental response to interventions. It is expected that the majority of outcome indicators will require longer term reporting (> 5 years) before they may be considered as showing response to policy and other actions.

The technologies for monitoring and assessing change in the environment are advancing rapidly and offer new cost-effective methods (e.g. earth observations, DNA methods, citizen science/mobile apps and new sensor technologies). We will look to update indicators to reflect these developments when appropriate but will ensure the environmental parameters used for reporting indicators are consistent and so retain the trend time-series.

The Outcome Indicator Framework will be kept under regular review so that it continues to be relevant and provide the best and most cost-effective ways of assessing progress. The framework will be reviewed as a minimum every 5 years.

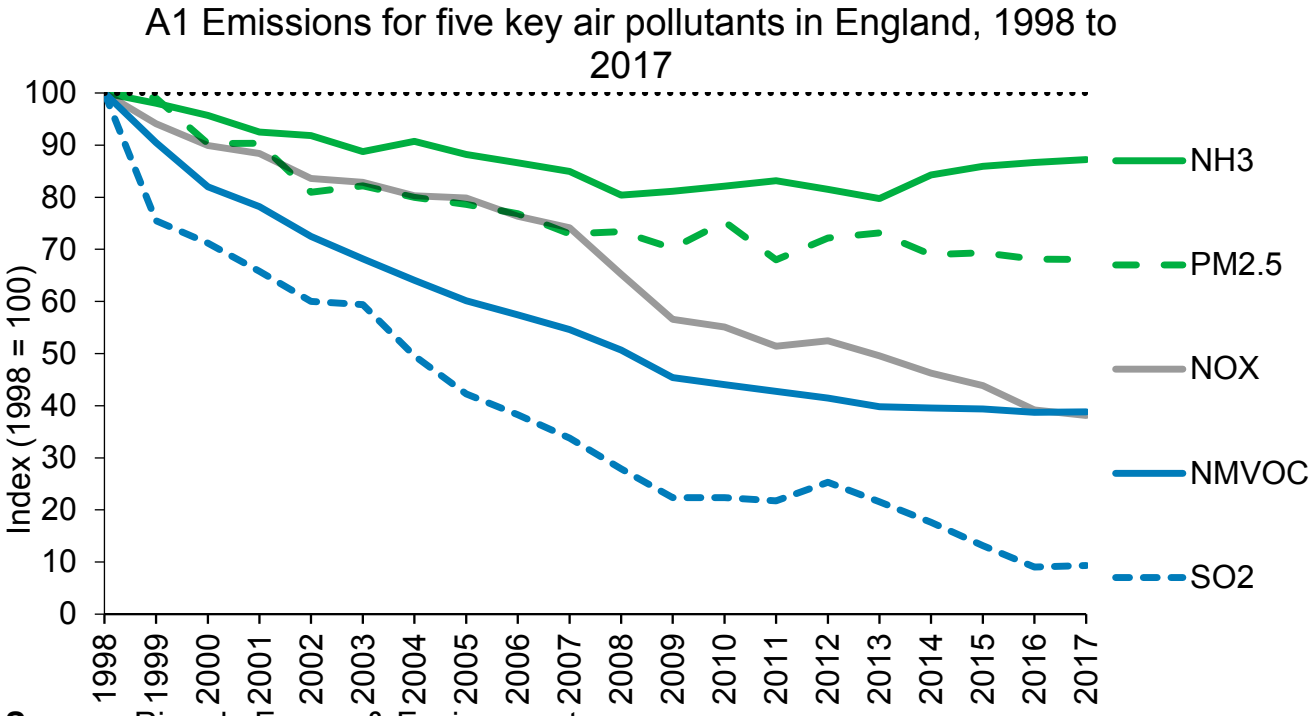
Section B: Indicator descriptions and data trends

This section provides a technical summary of each of the indicators. For each indicator the summary includes a cross-reference to relevant goals and targets in the 25 Year Environment Plan, the natural capital assets to which it relates and other relevant international reporting commitments. The readiness of each indicator is also assessed in terms of whether it is already published or whether further development is required. Links are provided to relevant data sources and data trends are presented where data are available in appropriate formats. In some instances, interim indicators are presented pending further development of the indicator, this is clearly identified where relevant. The geographic scope refers to the area the dataset currently covers and the potential to disaggregate the data at finer resolutions.

A1 Emissions for five key air pollutants

Short description	This indicator shows changes in the emissions of the 5 key air pollutants: sulphur dioxide (SO_2), fine particulate matter ($PM_{2.5}$), nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOC) and ammonia (NH_3). Air pollution has negative impacts on human health and the environment. Long-term exposure to particulate matter contributes to the risk of developing cardiovascular diseases and lung cancer. As well as being emitted directly, particulate matter can be formed in the atmosphere from reactions between other pollutants, of which SO_2, NO_x, NMVOCs and NH_3 are the most important. NO_x and NH_3 emissions can be deposited in soils or in rivers and lakes, e.g. through rain. Resulting nutrient nitrogen deposition affects the nutrient levels and diversity of species in sensitive environments, for example, by encouraging algae growth in lakes and water courses and by producing ozone (O_3) which damages crops and leads to impacts on wildlife through enhanced nutrient levels. This indicator is an assessment of pressures on the atmosphere caused by the emissions of 5 key pollutants, which when concentrated in the air or deposited have impacts on human health and ecosystems.
Relevant goal(s) in the 25 Year Environment Plan	Clean air Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Meeting legally binding targets to reduce emissions of 5 damaging air pollutants.

	Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Pressure
Related reporting commitments	EU National Emissions Ceiling Directive (NECD); Emissions Reduction Commitments.
Geographical scope	England
Readiness and links to data	Data are already published annually in the Air Quality Pollutant Inventories 1990-2017
Interim indicator (where applicable)	Not applicable



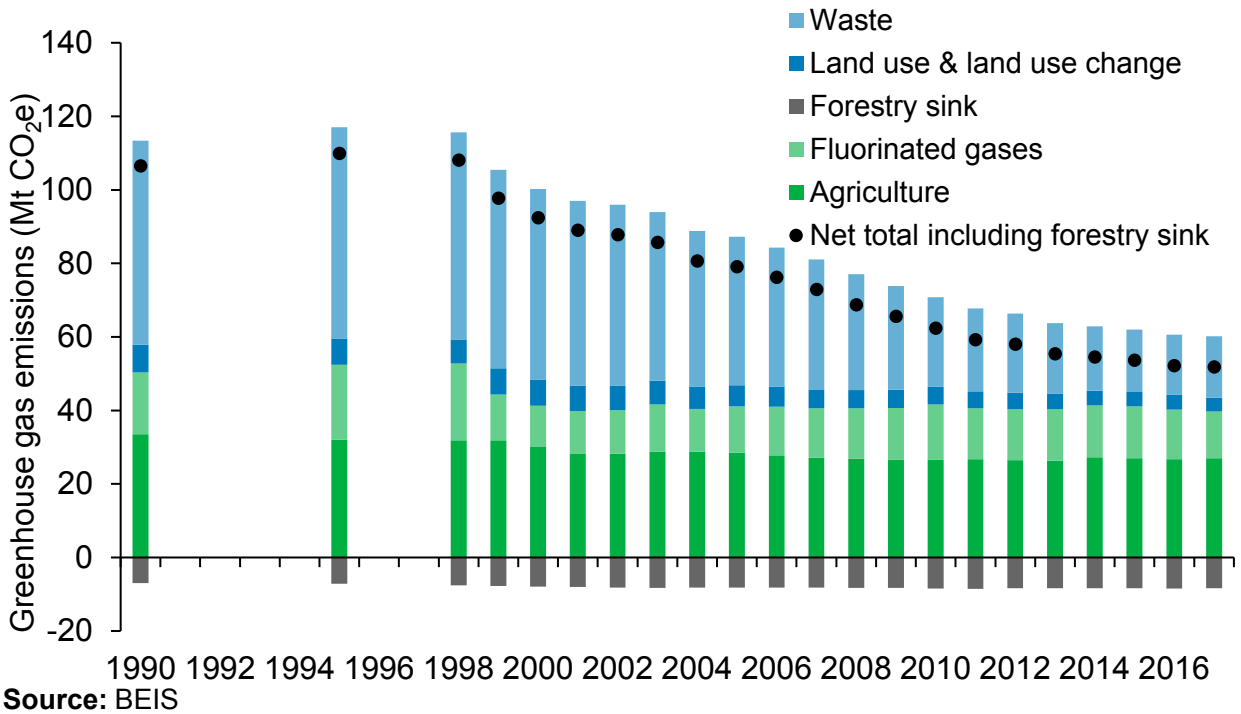
Source: Ricardo Energy & Environment

Trend description: Emissions for all 5 key air pollutants in England have fallen over the latest 19 years for which annual, country-level data are available. Emissions of SO_2 have seen the greatest reductions, falling by 91% between 1998 and 2017. Emissions of NO_X and NMVOCs have fallen by 62% and 61% respectively, and emissions of $PM_{2.5}$ and NH_3 have fallen by 32% and 13% respectively over the same time period. Over the last 5 years of the time series the trends in annual emissions of $PM_{2.5}$ and NMVOC have levelled off and NH_3 has increased. For $PM_{2.5}$, decreases in emissions from many sources have been partially offset by increases in emissions from residential burning (domestic combustion; emissions of $PM_{2.5}$ from this source increased by 46% between 2007 and 2017).

A2 Emissions of greenhouse gases from natural resources

Short description	This indicator tracks the changes in greenhouse gas emissions from natural resources as described in the Clean Growth Strategy. Greenhouse gases contribute to global climate change which is a pressure on many aspects of our environment. The indicator shows the annual net amount of greenhouse gas emissions from land use and land use change, the forestry, agriculture and waste sectors and from the use of fluorinated gases. Net emissions from peatland will be included when the Wetland Supplement is implemented in the UK Greenhouse Gas Inventory
Relevant goal(s) in the 25 Year Environment Plan	Mitigating and adapting to climate change
Relevant target(s) in the 25 Year Environment Plan	Continuing to cut net greenhouse gas emissions including from land use, land use change, the agriculture and waste sectors and the use of fluorinated gases. The UK Climate Change Act commits the UK to reducing greenhouse gas emissions by at least 100% of 1990 levels (net zero) by 2050.
Position in the natural capital framework	Pressure
Related reporting commitments	UN Framework Convention on Climate Change (UNFCCC) greenhouse gas emissions inventory data for Agriculture, Land Use, Land Use Change and Forestry (LULUCF), Waste Management and Industrial Processes. The UK Climate Change Act 2008 requires an annual report by the Committee on Climate Change to parliament on whether the UK is on course to meet its carbon budgets and targets.
Geographical scope	England
Readiness and links to data	Underlying data are already published annually in Greenhouse Gas Inventories 1990-2017
Interim indicator (where applicable)	Not applicable

A2 Emissions of greenhouse gases from natural resources in England by sector, 1990 to 2017



Source: BEIS

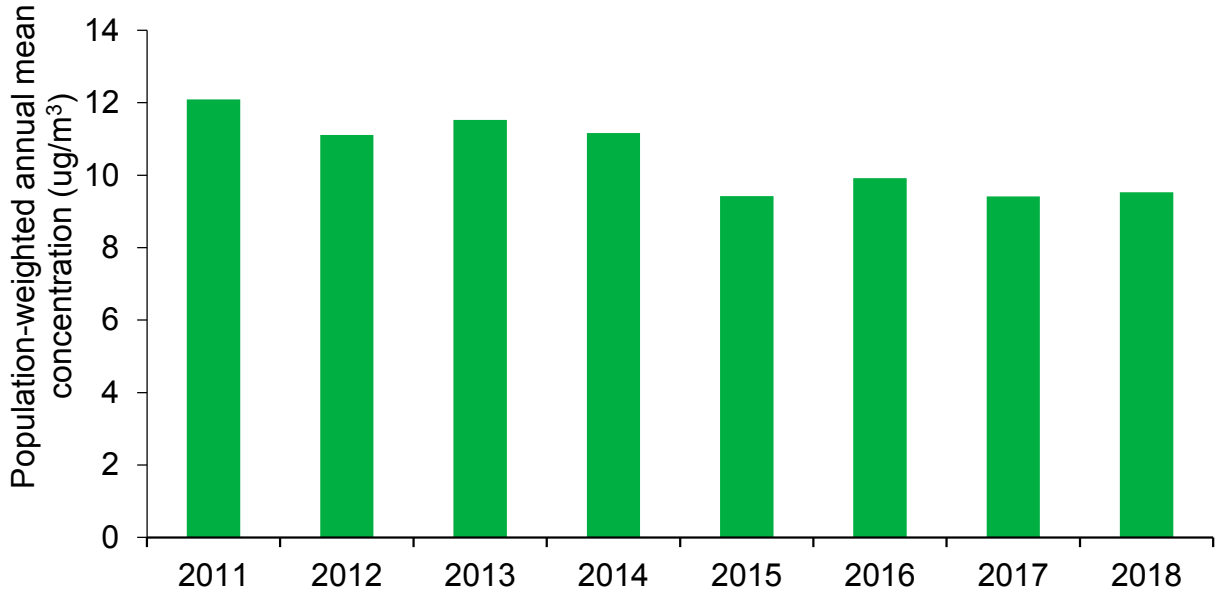
Note: The data in this indicator are reflective of the current definition for greenhouse gases from natural resources; they may be subject to change in future updates.

Trend description: After a small initial increase, emissions of greenhouse gases from natural resources in England have fallen by 51%, from 106 million tonnes of carbon dioxide equivalent (Mt CO_2e) in 1990 to 52 Mt CO_2e in 2017. Net greenhouse gas emissions have fallen from all sectors included within this indicator, however the greatest reduction has been achieved in the waste sector (39 Mt CO_2e or 70%). While emissions from land use and land use change, fluorinated gases and from agriculture have fallen by 50%, 25%, and 19% respectively, and net removals by the forestry sector have increased by 20%, the total net improvements in these 4 sectors combined (16 Mt CO_2e) is less than half of that achieved in the waste sector.

A3 Concentrations of fine particulate matter ($PM_{2.5}$) in the air

Short description	This indicator is a measure of the level of long-term exposure of people to harmful airborne fine particulate matter ($PM_{2.5}$). Long-term exposure to particulate matter contributes to the risk of developing cardiovascular disease and lung cancer. The main sources of $PM_{2.5}$ pollution are industrial processes, combustion in residential, public, commercial and agricultural sectors and road transport. This indicator is an assessment of clean air (i.e. the condition of the atmosphere as an asset). It can also be considered as pressure on human health. It is determined by calculating the annual population-weighted mean concentration of $PM_{2.5}$ in the air, assessed as background concentrations per 1 km square. The population-weighted mean concentration is used as a measure of the impact of $PM_{2.5}$ on the health of the total population. Greater weighting is given to concentrations of $PM_{2.5}$ in urban areas to reflect the higher population density as those concentrations will affect a greater number of people. In addition, people living in urban areas are generally exposed to greater levels of $PM_{2.5}$ than those living in rural areas.
Relevant goal(s) in the 25 Year Environment Plan	Clean air
Relevant target(s) in the 25 Year Environment Plan	Meeting legally binding targets to reduce emissions of 5 damaging air pollutants (including primary $PM_{2.5}$ and precursor pollutants that contribute to secondary $PM_{2.5}$ in the atmosphere).
Position in the natural capital framework	Asset condition – atmosphere
Related reporting commitments	EU Ambient Air Quality Directive.
Geographical scope	England, potential to disaggregate data to local authority level.
Readiness and links to data	Data are already published annually at UK Air Information Resource, Modelled background pollution data
Interim indicator (where applicable)	Not applicable

A3 Concentrations of fine particulate matter ($PM_{2.5}$) in England, 2011 to 2018



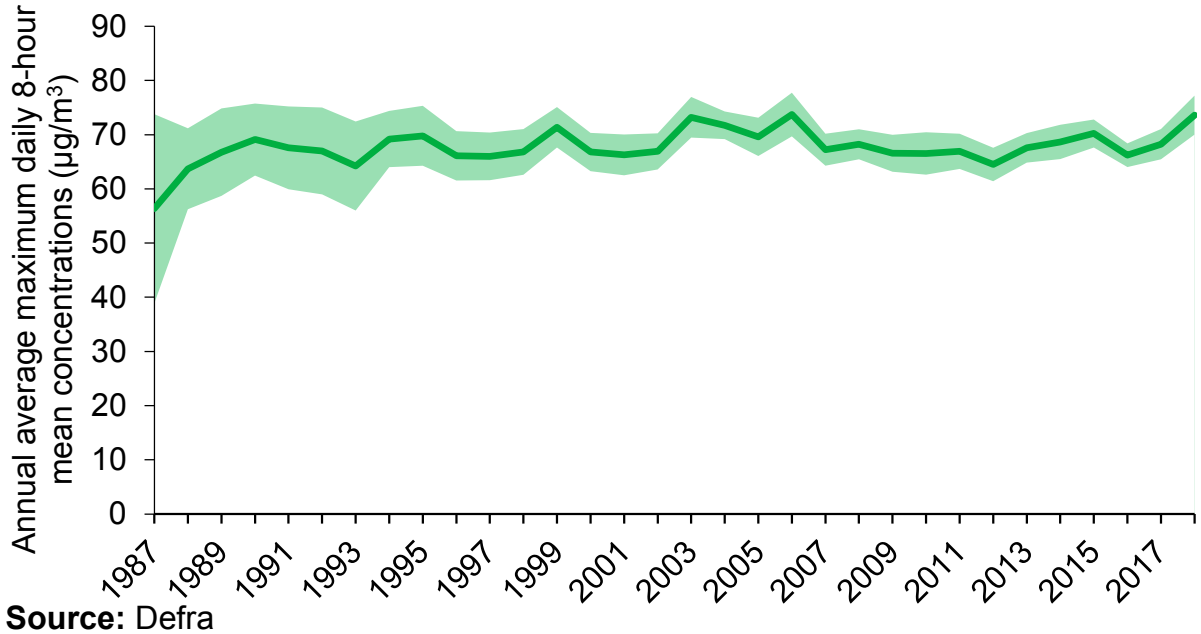
Source: Defra

Trend description: Population-weighted annual mean concentrations of $PM_{2.5}$ in England have declined from 12.1 µg/m^3 in 2011 to 9.5 µg/m^3 in 2018, a fall of 22% over the latest 7 years for which comparable data are available.

A4 Rural background concentrations of ozone (O_3)

Short description	This indicator will track changes in rural background concentration of ozone (O_3). Chemical reactions in the air involving nitrogen oxides (NO_X) and volatile organic compounds (VOCs) produce the toxic gas O_3 which can harm health, damage wild plants, crops, forests and some materials, and is a greenhouse gas contributing to global warming. This indicator is an assessment of clean air (i.e. the condition of the atmosphere as an asset). It can also be considered as pressure on human health and thriving plants and wildlife. It is determined by calculating the annual average of the maximum daily 8-hour mean concentrations of O_3 measured at all rural measurement sites on Defra's Automatic Urban and Rural Network.
Relevant goal(s) in the 25 Year Environment Plan	Clean air Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Meeting legally binding targets to reduce emissions of 5 damaging air pollutants (some of which are O_3 precursors). Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Asset condition – atmosphere
Related reporting commitments	EU Ambient Air Quality Directive.
Geographical scope	England
Readiness and links to data	Data are already published annually as National Statistics, Air Quality Statistics
Interim indicator (where applicable)	Not applicable

A4 Rural background concentrations of ozone (O_3) in England, 1987 to 2018



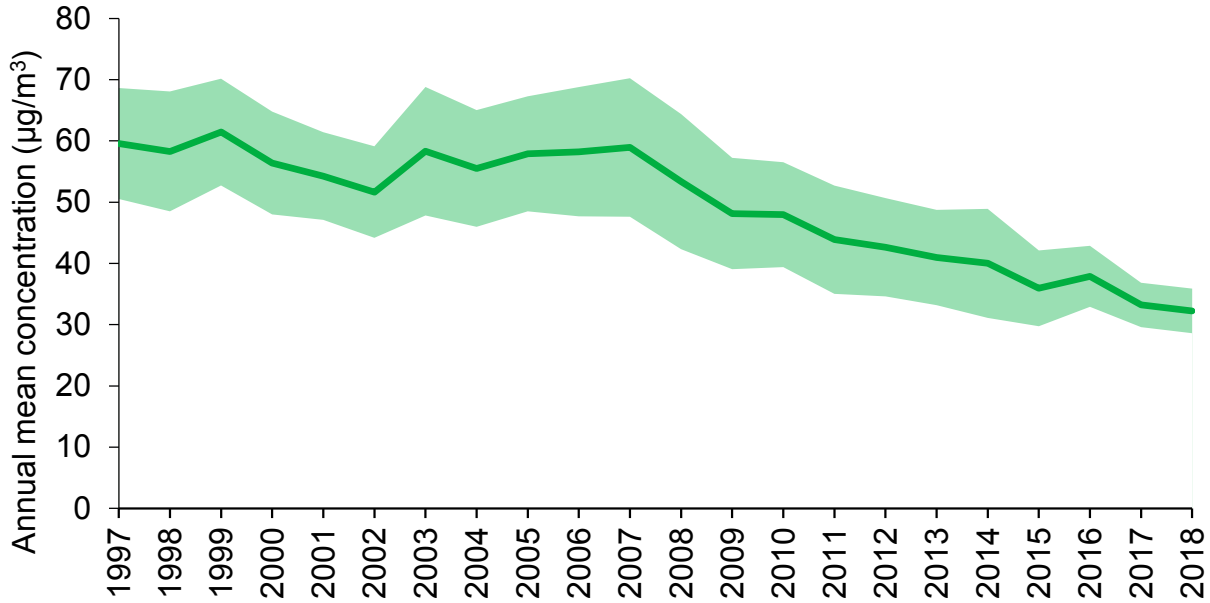
Source: Defra

Trend description: The average daily maximum eight hour mean concentration of ozone has fluctuated since the start of the time series in 1987 and was 74 µg/m^3 in 2018; a significant increase in concentration compared to 2017 (68 µg/m^3). Some variance from year-to-year is expected due to fluctuations in the occurrence of hot summer weather conditions which are associated with high ozone concentrations. The shaded area represents the 95% confidence interval for the annual mean concentration measured at rural background sites. The interval narrows over time because of an increase in the number of monitoring sites and a reduction in the variation between annual means for O_3.

A5 Roadside nitrogen dioxide (NO_2) concentrations

Short description	This indicator will track changes in average roadside concentration of nitrogen dioxide (NO_2). NO_2 arises predominantly from combustion sources such as traditionally fuelled vehicles and therefore the highest concentrations are often found at roadside locations. This indicator is an assessment of clean air (i.e. the condition of the atmosphere as an asset). It can also be considered as a pressure on human health. It is determined by calculating the average value of the annual mean concentrations measured across Defra's Automatic Urban and Rural Network at all roadside locations (with greater than 75% data capture in any one year).
Relevant goal(s) in the 25 Year Environment Plan	Clean air
Relevant target(s) in the 25 Year Environment Plan	Meeting legally binding targets to reduce emissions of 5 damaging air pollutants (including NO_2).
Position in the natural capital framework	Asset condition – atmosphere
Related reporting commitments	EU Ambient Air Quality Directive.
Geographical scope	England, data from individual monitoring sites are also available.
Readiness and links to data	Data are already published annually as National Statistics, Air Quality Statistics
Interim indicator (where applicable)	Not applicable

A5 Roadside nitrogen dioxide (NO_2) concentrations in England, 1997 to 2018



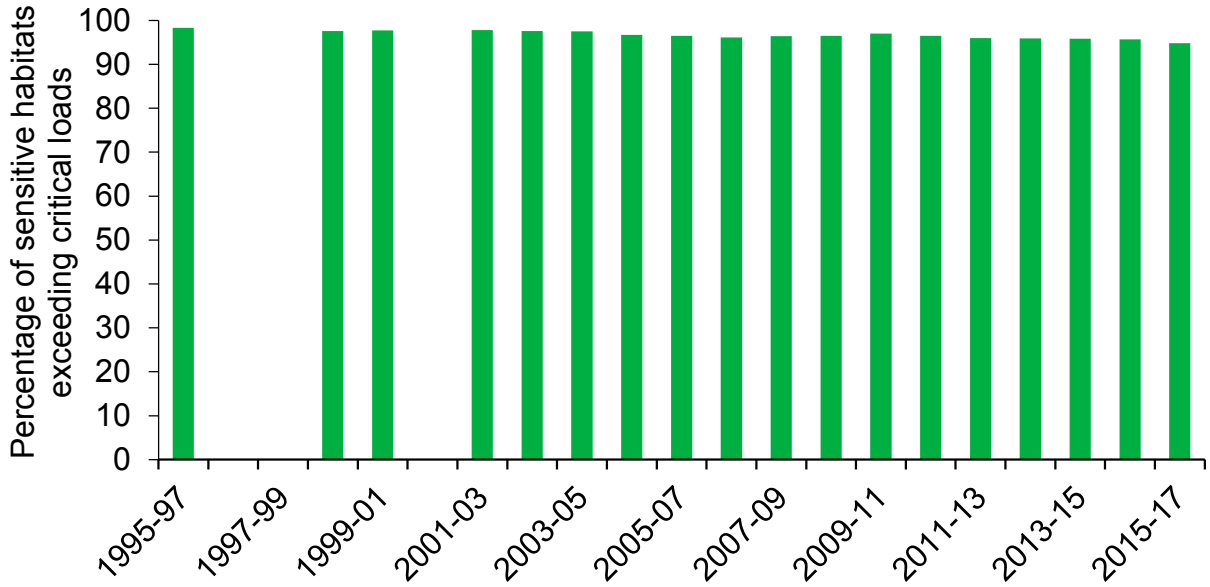
Source: Defra

Trend description: Concentrations of roadside NO_2 in England have fallen from 60 µg/m^3 in 1997 to 32 µg/m^3 in 2018, a drop of 46% over the latest 21 years for which data are available. The shaded area represents the 95% confidence interval for the annual mean concentration measured at roadside sites. The interval narrows over time because of an increase in the number of monitoring sites and a reduction in the variation between annual means for NO_2. Although the general trend in measured NO_2 concentrations is decreasing and falls below the NO_2 limit value of 40µg/m^3 in recent years, there are hotspots of NO_2 exceedances which are being addressed through the NO_2 plans.

A6 Exceedance of damaging levels of nutrient nitrogen deposition on ecosystems

Short description	This indicator will show changes in average accumulated exceedance and percentage of sensitive areas exceeding the internationally agreed threshold for harmful effects for nutrient nitrogen deposition across sensitive habitats. The damaging nutrient nitrogen comes predominantly from ammonia (NH_3) but partly nitrogen oxides (NOx) and long-range transport of air pollutants. This indicator is an assessment of clean air (i.e. the condition of the atmosphere as an asset). It can also be considered as pressure on thriving plants and wildlife. It is determined by calculating the area of sensitive habitat exceeding the internationally agreed threshold for likely damaging effects from reactive nitrogen deposition in both oxidised and reduced forms, termed the critical load. It uses modelled interpolations of atmospheric concentrations of NOx and NH_3 and models deposition processes based on internationally agreed methodology.
Relevant goal(s) in the 25 Year Environment Plan	Clean air Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Meeting legally binding targets to reduce emissions of 5 damaging air pollutants. Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Pressure
Related reporting commitments	Emissions Reductions Commitments for NO_x and NH_3 under the EU National Emissions Ceilings Directive (NECD); International Collaborative Partnership reporting under UNECE's Working Group on Effects; Convention on Biological Diversity (CBD) Aichi Target 8.
Geographical scope	England
Readiness and links to data	Assessments are undertaken and published annually using 3-year moving average data, at UK Air Information Resource: Trends in critical load and critical level exceedances in the UK
Interim indicator (where applicable)	Not applicable

A6 Exceedance of damaging levels of nutrient nitrogen deposition in England, 1995-97 to 2015-17



Source: Centre for Ecology & Hydrology 3-year moving average time periods

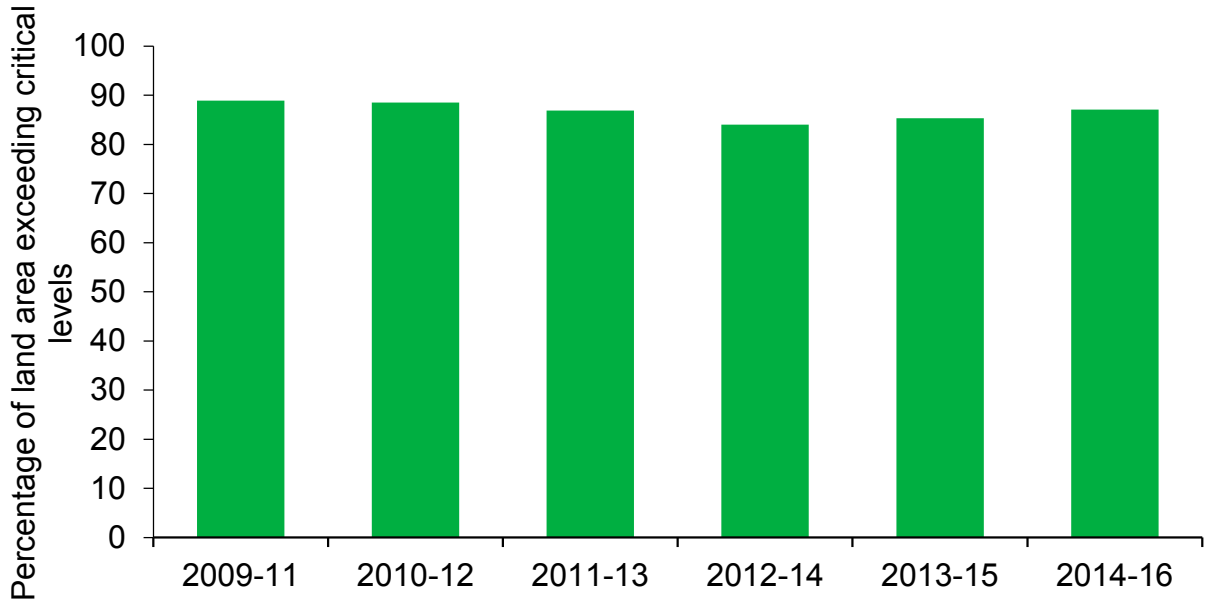
Note: There have been a number of minor methodological changes in 2001-02, 2002-04 and 2004-06 which should be taken into account when interpreting this trend.

Trend description: The percentage area of sensitive habitats in England where nutrient nitrogen deposition exceeded critical load has fallen over the latest 20 years for which data are available (98.3% in 1995-97 to 94.8% in 2015-17).

A7 Area of sensitive habitats exposed to damaging levels of ammonia (NH_3) in the atmosphere

Short description	This indicator tracks changes in land area affected by damaging levels of ammonia (NH_3) in the air. Excess deposition of NH_3 on natural ecosystems causes nutrient enrichment and changes in vegetation and soils. Agriculture is the main source of NH_3 emissions to the atmosphere. This indicator is a measure of pressure on ecosystems from air pollution. It shows the percentage of land area where interpolated measurements of ground-level air exceeds the lower critical level threshold for NH_3 of 1 $\mu g/m^3$.
Relevant goal(s) in the 25 Year Environment Plan	Clean air Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Meeting legally binding targets to reduce emissions of 5 damaging air pollutants (including NH_3). Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Pressure
Related reporting commitments	UNECE National Emissions Ceiling Directive Art.9 and the Convention on Long-range Transboundary Air Pollution; Convention on Biological Diversity Aichi Target 8.
Geographical scope	England
Readiness and links to data	Assessments are undertaken and published annually using 3-year moving average data, at UK Air Information Resource: Trends in critical load and critical level exceedances in the UK
Interim indicator (where applicable)	Not applicable

A7 Area of land in England exposed to damaging levels of ammonia (NH_3) in the atmosphere, 2009-11 to 2014-16



Source: Centre for Ecology & Hydrology

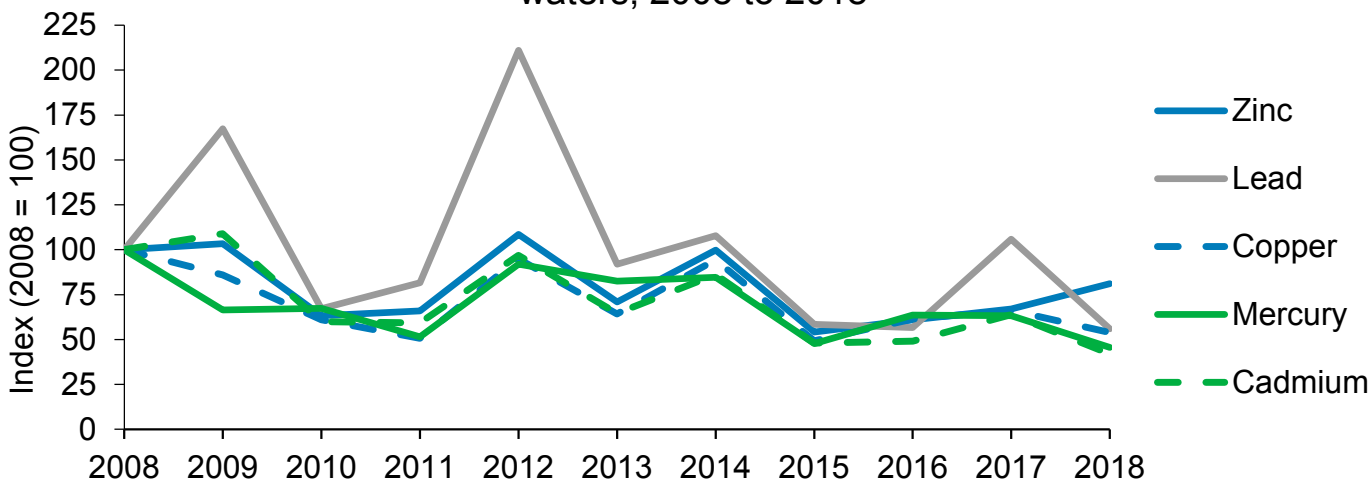
Trend description: The percentage of land area exposed to concentrations of NH_3 that exceed critical levels (1 µg/m^3) has decreased from 88.9% in 2009-11 to 87.1% in 2014-16.

B1 Pollution loads entering waters

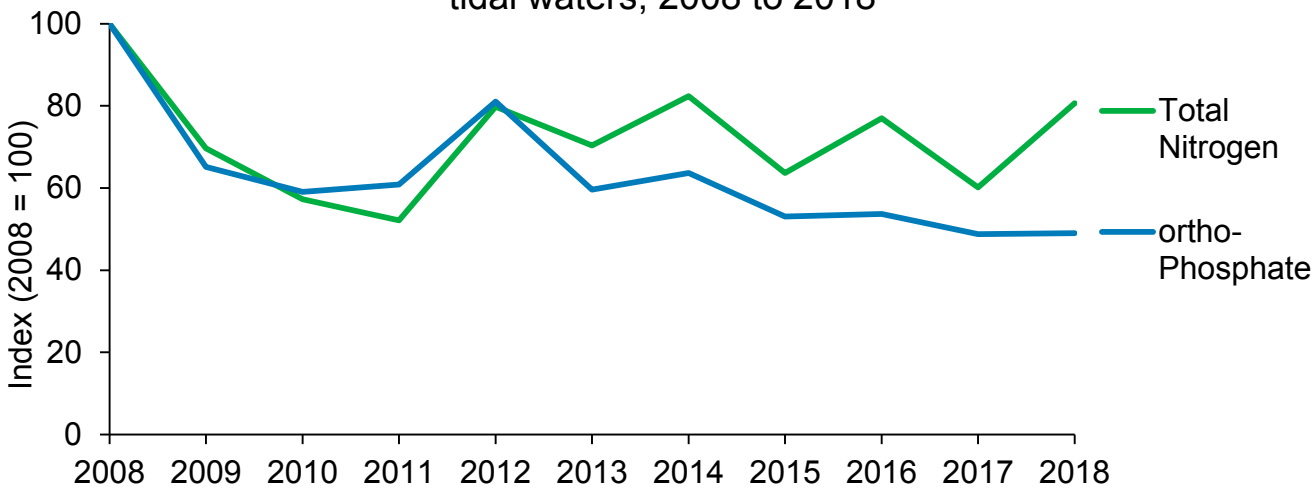
Short description	This indicator will track changes in the inputs and discharges of selected contaminants such as nutrients and some toxic chemicals to rivers or directly to the sea, for example through sewage pipelines or activities such as agriculture inputting substances directly. Pollution is a pressure that reduces the quality of water and potentially increases the costs of water treatment. It also affects wildlife in rivers, coastal waters and estuaries and the recreational uses of these water bodies. This indicator will be derived from the existing Riverine Input and Direct Discharges (RID) data collected under the OSPAR Convention and the Environment Agency's Emissions Inventory.
Relevant goal(s) in the 25 Year Environment Plan	Clean and plentiful water Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Improving at least three-quarters of our waters to be close to their natural state. Reaching or exceeding objectives for rivers, lakes, coastal water and ground waters that are specially protected, whether for biodiversity or drinking water as per our River Basin Management Plans. Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Pressure
Related reporting commitments	OSPAR Convention, EU Water Framework Directive.
Geographical scope	England, data for individual sites, water bodies and catchments are also available.
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows riverine inputs of selected metals and nutrients into English tidal waters. Some data for this interim indicator are published annually (RID data) and the EA emissions inventory is published every six years. Further development is required to present trends for selected contaminants in an indicator. Contact the Environment Agency's National Customer Contact Centre (enquiries@environment-agency.gov.uk) for the OSPAR database extract used for the interim indicator.
Interim indicator (where applicable)	**B1 (interim) Riverine inputs of selected metals and nutrients into English tidal waters, 2008 to 2018.** The interim indicator covers changes in the riverine input

	loads in England of cadmium, copper, lead, mercury, zinc, total nitrogen and ortho-phosphate since 2008. Data and monitoring sites are a subset of the data and sites used to report the UK inputs of contaminants to the marine environment under the OSPAR Convention for the Protection of the North East Atlantic.

B1a (interim) Riverine inputs of selected metals into English tidal waters, 2008 to 2018



B1b (interim) Riverine inputs of selected nutrients into English tidal waters, 2008 to 2018



Source: Environment Agency

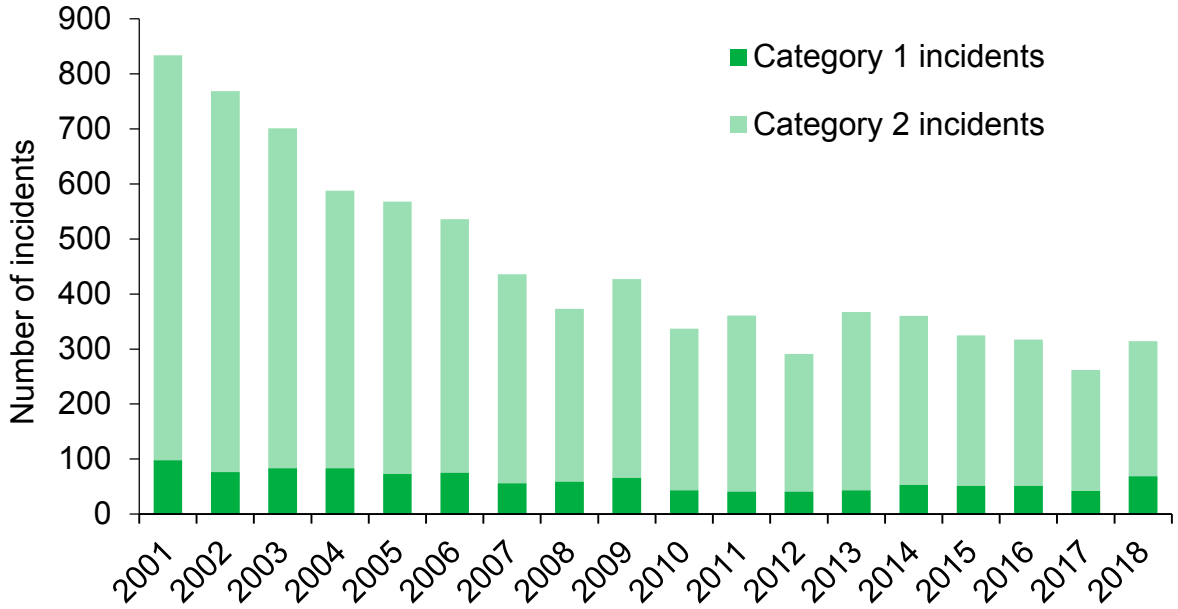
Note: The ‘Main River’ and the ‘River tributary’ load data are combined to calculate the annual total loads for selected metals, total nitrogen and ortho-phosphate. These load data (kg per year) are calculated using chemical concentration data reported in the Environment Agency’s public register (Water Information Management System) and flow data reported in the Environment Agency’s core system of hydrometric and hydrological values (Water Information System by Kisters). The interim indicator reports loads relative to the 2008 baseline (index = 100).

Trend description: Although riverine inputs of cadmium, copper, mercury, zinc and particularly lead into English tidal waters have fluctuated considerably since 2008, they have all fallen. Cadmium has seen the greatest reductions (58%), followed by copper (56%), lead and mercury (54%) and zinc (19%). Riverine inputs of total nitrogen and ortho-phosphate have also fluctuated considerably since 2008; both have fallen by 19% and 51% respectively.

B2 Serious pollution incidents to water

Short description	This indicator shows changes in the number of pollution incidents impacting on water health, including in rivers, lakes, reservoirs, canals, coasts, estuaries and groundwater. Serious pollution incidents are a pressure on the water environment. The Environment Agency uses 4 categories to determine the severity of pollution incidents. The indicator shows the number of events in each year that are in the 2 higher categories, for example causing death of fish, potential harm to bathers, or the temporary cessation of abstraction from a river by a drinking water provider.
Relevant goal(s) in the 25 Year Environment Plan	Clean and plentiful water Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	No specific target.
Position in the natural capital framework	Pressure
Related reporting commitments	Domestically under the Environment Act 1995 and also relevant under the UN's Sustainable Development Goal 6.
Geographical scope	England, data for individual incidents at any geographical scale are also available.
Readiness and links to data	Data are already published annually by the Environment Agency: Pollution incidents data; longer-term trends are available in the State of the environment: water quality report and the Regulating for people, the environment and growth report.
Interim indicator (where applicable)	Not applicable

B2 Serious pollution incidents to water in England, 2001 to 2018



Source: Environment Agency

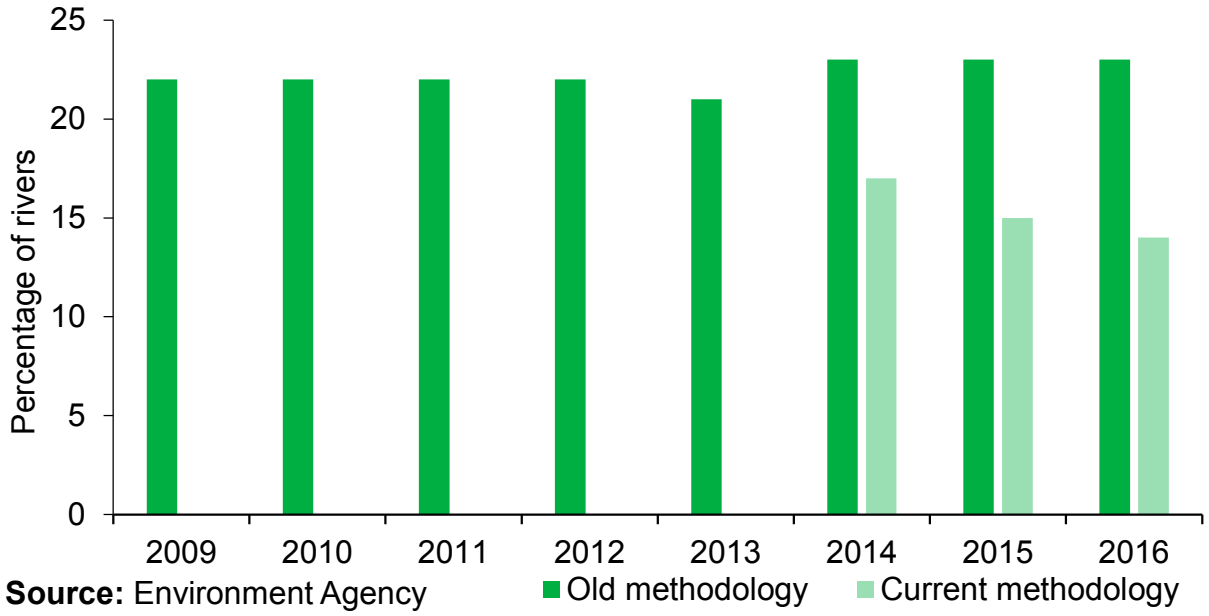
Trend description: The total number of serious pollution incidents to water in England has fallen from 373 in 2008 to 314 in 2018, a drop of 16%. Category 2 (significant) incidents decreased from 314 in 2008 to 245 in 2018; category 1 (serious) incidents increased from 59 in 2008 to 69 in 2018.

B3 State of the water environment

Short description	This indicator takes a broad overview of the condition of the water environment. It will be composed of several metrics including: percentage of water tests meeting good (or better) Water Framework Directive status for ecology and chemistry, percentage of water bodies achieving good ecological status, compliance of waters specially protected for specific uses such as drinking water abstraction and nature conservation. Some of these data relating to protected sites are also included in D2 Extent and condition of protected sites – land, water and sea. The indicator relates to freshwater bodies, wetlands, groundwaters, coastal waters and estuaries.
Relevant goal(s) in the 25 Year Environment Plan	Clean and plentiful water Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Improving at least three-quarters of our waters to be close to their natural state. Reaching or exceeding objectives for rivers, lakes, coastal and ground waters that are specially protected, whether for biodiversity or drinking water as per the river basin management plans. Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Asset condition – freshwater; marine; species and ecological communities
Related reporting commitments	The Water Framework Directive and Water Environment Regulations 2017 contain specific requirements on monitoring and/or reporting these data, with comprehensive reporting every 6 years and progress reporting every 3 years. Also required for reporting under the EU Habitats and Birds Directives for water dependent Natura 2000 sites. May also provide evidence in support of Climate Change Risk Assessment under the Climate Change Act (2008). Also relevant to the Sustainable Development Goal 6.3.2 – Proportion of bodies of water with good ambient water quality.
Geographical scope	England, data at site, water body, catchment and river basin district level are also available.
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows the status of river water bodies in England since 2009. Data are published at least every 6 years (WFD element status; WFD compliance; protected area data; state of the environment: water quality report).

	Development of a new approach to representing the data for different water categories, protected areas and range of tests undertaken is underway. This will be reported in 2021.
Interim indicator (where applicable)	**B3 (interim) Rivers in England achieving good or high ecological status**. The interim indicator covers one aspect of indicator B3 relating to the ecological status of river water bodies as reported for the Water Framework Directive. 'Good or high ecological status' means that a water body is close to 'undisturbed' conditions. Ecological status is assigned using various water, habitat and biological quality tests. Failure of any one individual test means that the whole water body fails to obtain good or better ecological status. Data is only available to 2016, more recent data will be available with the next set of WFD water body classification results due for publication in mid-2020.

B3 (interim) Rivers in England achieving good or high ecological status, 2009 to 2016



Source: Environment Agency

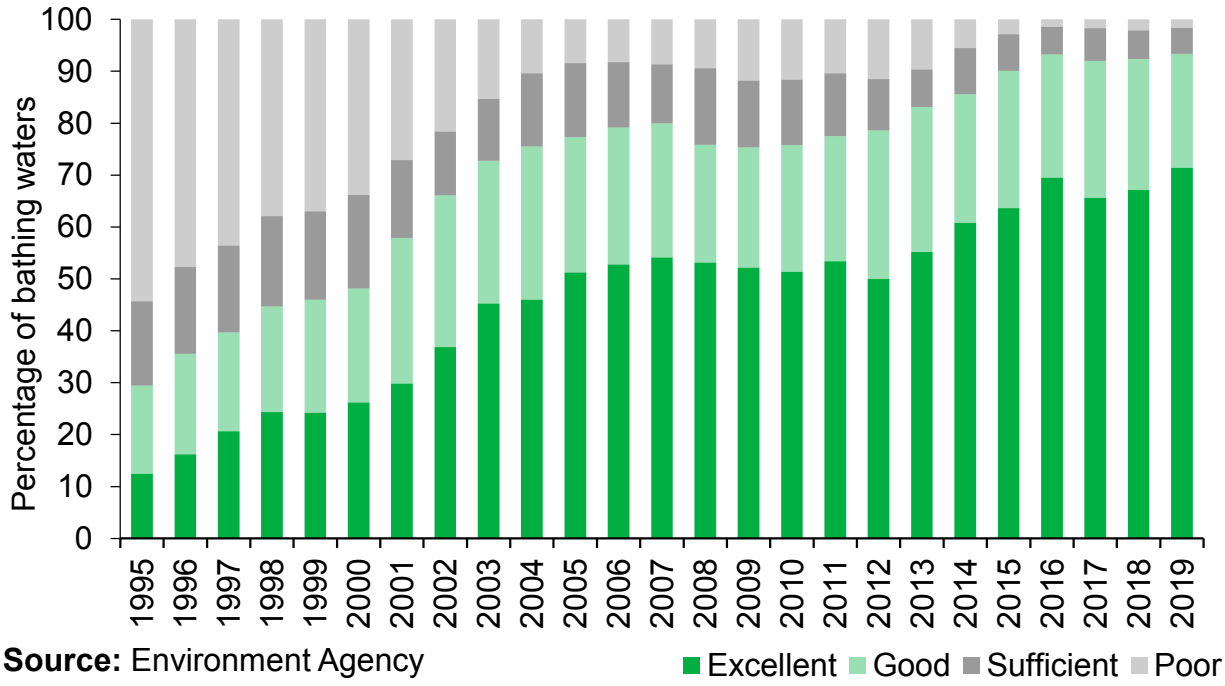
Note: Due to the changes in assessment methodology from 2014 it is not possible to make direct comparisons between the methods.

Trend description: In 2016, 14% of English river water bodies assessed under the WFD were in good or high ecological status when measured using the 'one out all out' methodology highlighted in the 'interim indicator' section above and there is evidence of a small decline in these figures since 2014. Other data e.g. the percentage of individual tests meeting good or high ecological status, or the average concentration of individual pollutants, show the prevalence of good water quality and reductions in the level of some pollutants in recent decades.

B4 Condition of bathing waters

Short description	This indicator assesses the condition of bathing waters. It shows the percentage of designated bathing waters meeting conditions sufficient to minimise the risk of harm to bathers from faecal pollution. It is based on a set of microbiological tests (measuring E.coli and intestinal enterococci) performed on waters used for bathing. The bacteria, if present, can cause severe stomach upsets and gastro-intestinal illness. Bathing waters are mainly coastal beaches but also include a number of inland freshwater lakes.
Relevant goal(s) in the 25 Year Environment Plan	Clean and plentiful water
Relevant target(s) in the 25 Year Environment Plan	Minimising by 2030 the harmful bacteria in our designated bathing waters and continuing to improve the cleanliness of our waters.
Position in the natural capital framework	Asset condition – marine; freshwater
Related reporting commitments	Statutory duty under the EU Bathing Water Directive to report annually to the EU.
Geographical scope	England, data for individual designated bathing water are also available.
Readiness and links to data	Data on Bathing water quality statistics are already published annually; longer-term trends are available in the State of the environment: water quality report.
Interim indicator (where applicable)	Not applicable

B4 Condition of bathing waters in England, 1995 to 2019



Source: Environment Agency

Trend description: The number of designated bathing waters in England meeting at least the minimum standard (i.e. sufficient, good or excellent) has increased considerably from 45.7% in 1995 to 98.3% in 2019; it has remained relatively stable over the last 4 years at between 97.8% and 98.5%. The number of bathing waters achieving excellent status has also increased considerably since 1995, with 71.4% meeting this standard in 2019. The number of bathing waters rated as poor has remained below 3% since 2015.

B5 Water bodies achieving sustainable abstraction criteria

Short description	This indicator will show changes in the percentage of surface waters (rivers, lakes, reservoirs and estuaries) and groundwater (including wetlands fed by groundwater) where sustainable abstraction criteria are met. River flows and groundwater levels are sustainable when they support ecology that is only slightly impacted by human activity. The indicator is affected by changes in water use, both in relation to leakage and personal consumption (see E8 Efficient use of water). This indicator is also sensitive to effects of future climate change on rainfall and consumption and shows the need for adaptation.
Relevant goal(s) in the 25 Year Environment Plan	Clean and plentiful water Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Reducing the damaging abstraction of water from rivers and groundwater, ensuring that by 2021 the proportion of water bodies with enough water to support environmental standards increases from 82% to 90% for surface water bodies and from 72% to 77% for groundwater bodies. Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Asset condition – freshwater
Related reporting commitments	Reported every 3 years as part of the EU Water Framework Directive/Water Environment Regulations 2017. Relevant to Sustainable Development Goal 6.4.2. May also support Climate Change Risk Assessment and the Adaptation Sub-Committee's assessment of the National Adaptation Programme, under the Climate Change Act (2008).
Geographical scope	England, data for individual water bodies are also available.
Readiness and links to data	Data on WFD Cycle 2 site classifications are published every 3 years as part of Water Environment Regulations 2017 and the Abstraction Reform Report 2019.
Interim indicator (where applicable)	Not applicable

Note: A graph is not yet presented for this indicator as data is currently only available for 2 years.

Trend description: In 2018, 84% of surface bodies supported required flow standards, a 2% increase since 2017. In 2018, 72% of groundwater bodies were sustainable, with no change since 2017.

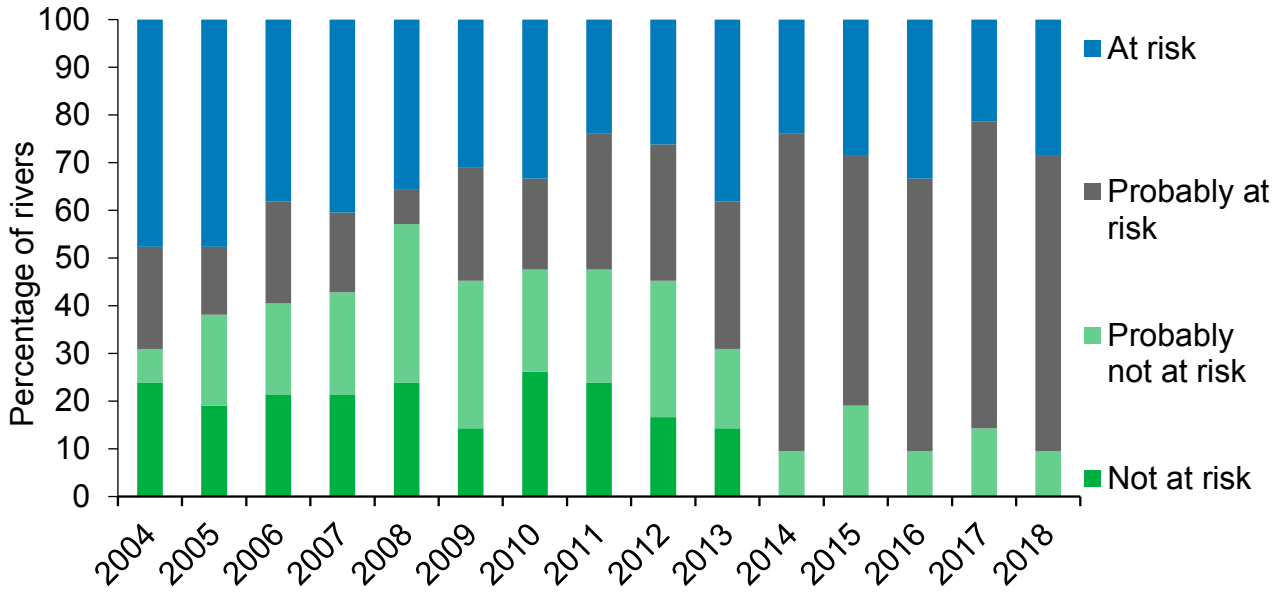
B6 Natural functions of water and wetland ecosystems

Short description	This indicator will track changes in the naturalness of ecosystems functioning at the catchment scale (including for example river headwaters, wetlands, standing water bodies). Restoring natural functions contributes to enhancing ecosystem services such as biodiversity, water purification, flow regulation and resilience to climate change. The indicator will help show the outcomes of actions to restore underlying hydrological and morphological processes in aquatic and wetland ecosystems. The indicator will use data from a range of sources including monitoring of waterbodies, designated sites, and priority habitats, and potentially from citizen science programmes. Further methodological development will be needed to apply this approach to the full range of water and wetland habitat types and to explore new methods including Earth Observation.
Relevant goal(s) in the 25 Year Environment Plan	Clean and plentiful water Thriving plants and wildlife Enhancing biosecurity
Relevant target(s) in the 25 Year Environment Plan	Achieve clean and plentiful water by improving at least three-quarters of our waters to be close to their natural state as soon as is practicable. Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Asset condition – freshwater; species and ecological communities
Related reporting commitments	EU Habitats Directive Article 17 reporting; EU Water Framework Directive/Water Environment Regulations 2017; Domestic targets under England Biodiversity Strategy 2020.
Geographical scope	England, data for individual water bodies, sites and catchment levels are also available.
Readiness and links to data	This indicator is not available for reporting in 2020. Substantial further work is required to develop the indicator, building on existing monitoring methodologies and testing new approaches.
Interim indicator (where applicable)	Not applicable

B7 Health of freshwaters assessed through fish populations

Short description	This indicator will track changes in populations of native freshwater fish in England. Fish are a good indicator of healthy freshwater environments, responding to changes in water quality (including temperature) and quantity, as well as the quality of river habitats, necessary to sustain healthy juvenile populations and enable migration throughout the rivers to complete their life-cycles. Fish also provide an important recreational and economic benefit from freshwaters. This indicator will build on the assessment currently undertaken for salmon adding other freshwater fish species for which consistent data are available.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife Clean and plentiful water
Relevant target(s) in the 25 Year Environment Plan	Taking action to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human induced extinction or loss of known threatened species in England and the Overseas Territories. Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Asset condition – freshwater; species and ecological communities
Related reporting commitments	This indicator will align with our assessment of fish populations in rivers as undertaken and reported through our obligations to the Water Framework Directive. The assessment of salmon stocks is reported separately to the International Council for the Exploration of the Seas and the /North Atlantic Salmon Conservation Organisation. Also relevant to Convention on Biological Diversity Aichi Target 6.
Geographical scope	England, data for river basin district are also available
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here which shows annually published national salmon stock data. For this assessment, each rivers' salmon stock is placed into one of four categories. Further work is required to develop an indicator which also includes other assessed species.
Interim indicator (where applicable)	**B7 (interim) Salmon stock status – principal salmon rivers at risk in England.**

B7 (interim) Salmon stock status - principal salmon rivers at risk in England, 2004 to 2018

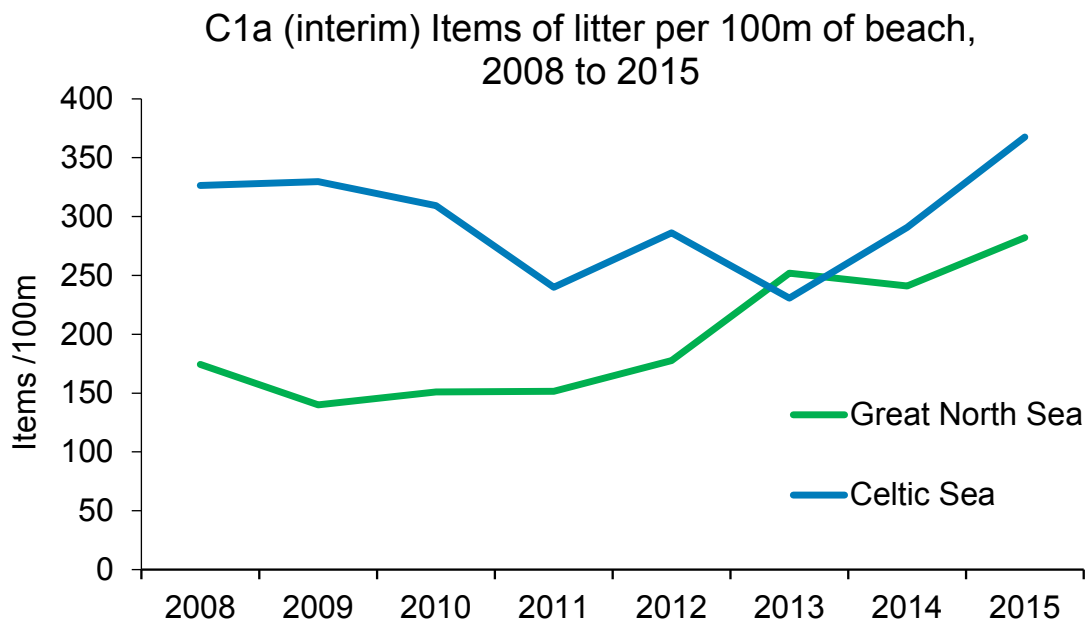


Source: Environment Agency

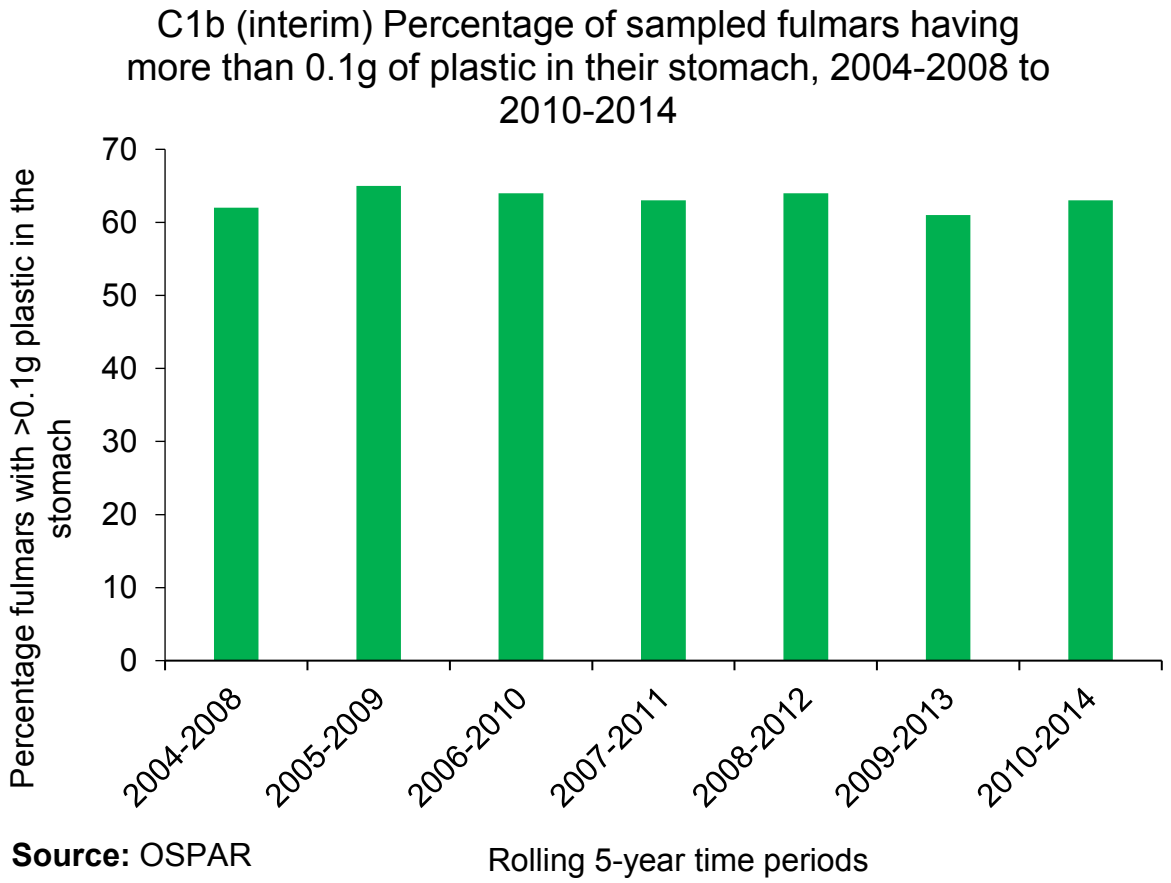
Trend description: The percentage of principal salmon rivers at risk in England has fallen by 19 percentage points, from 48% in 2004 to 29% in 2018. However, the percentage of rivers in the 'probably at risk' category has increased by 40 percentage points, from 21% to 62% and the percentage of rivers in the 'not at risk' category has fallen by 24 percentage points over the same time period. The percentage of rivers that are probably not at risk has increased slightly between 2004 and 2018.

C1 Clean seas: marine litter

Short description	This indicator of clean seas shows changes in the amount of litter in the marine environment, including litter on beaches, on the seafloor and floating litter. Beach litter surveys are completed annually or quarterly and cover a representative number of beaches. Data from trawl surveys, typically carried out for fish stock assessments, are used to monitor the amount of litter on the seafloor. After each tow all litter items are emptied from the net and counted and classified. Beached fulmars or individuals accidently killed are collected as part of a monitoring programme in the Greater North Sea to assess the plastics found in their stomachs. Fulmars forage exclusively at sea, generally at the surface of the water. The amount of plastic they ingest can be used as a proxy for the abundance of floating litter in their environment and how this is changing. Indicators for sea-floor litter, beach litter and litter found in Fulmar stomachs have been developed and expert groups are working to improve the data. Additional monitoring programmes are being developed to record amount of microplastics in sediment and in biota.
Relevant goal(s) in the 25 Year Environment Plan	Minimising waste
Relevant target(s) in the 25 Year Environment Plan	Significantly reducing and where possible preventing all kinds of marine plastic pollution– in particular material that came originally from land.
Position in the natural capital framework	Pressure
Related reporting commitments	UK Marine Strategy Regulations, OSPAR Convention. Relevant to Sustainable Development Goal 14.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows aspects of litter in the marine in environment. The assessments used for this interim indicator have been reported under the UK Marine Strategy Part One, 2019. Data, analytical methods and assessment on Marine litter are available here. Further methodological development of this indicator is required and the indicator's format will evolve.
Interim indicator (where applicable)	**C1 (interim) Litter in the UK marine environment**

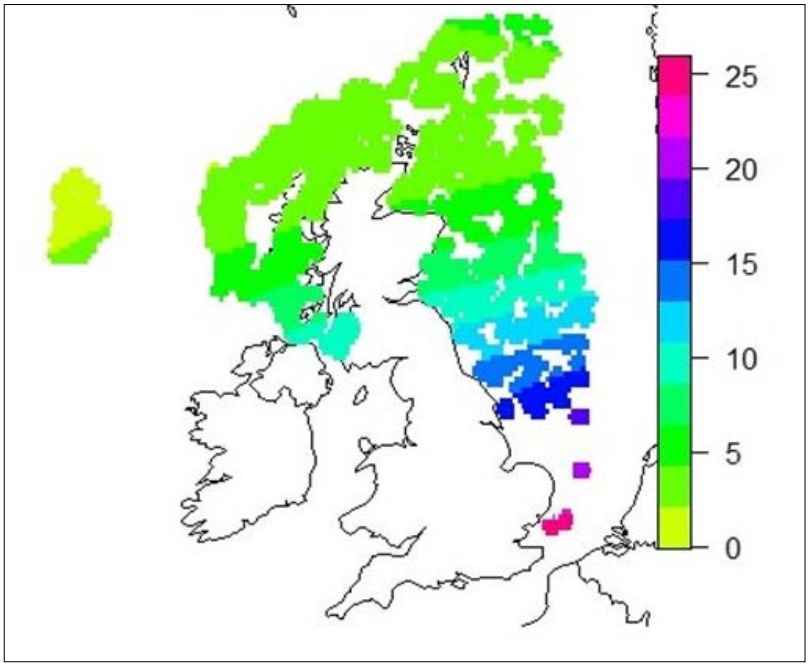


Source: Cefas



Source: OSPAR

C1c (interim) Smoothed median total of seafloor litter per km^2 2012 to 2015



Source: Cefas

Note: Trends in UK seafloor litter are represented by spatially smoothed predictions of the median total number of pieces of litter per kilometre, at a grid of points. The colours represent differing relative medians. This is using data combined over the years, although similar patterns are present in the data for the individual years. More data are required to make a full assessment of the trend in the amount of seafloor litter in specific areas of UK waters.

Trend description: The average total abundance of beach litter items per 100m of coast varies considerably around the UK with greater quantities being recorded in the Celtic Seas than the Greater North Sea. After showing some decrease from 2011 to 2013, beach litter levels in the Celtic Seas whilst fluctuating have risen to greater than the 2008 levels. In the Greater North Sea there has been an increase in beach litter levels. Water currents, weather conditions, and prevailing wind conditions can have an influence on the deposition and retention of beach litter and therefore beach litter abundance.

From 2004 to 2014 approximately 60% of surveyed fulmars were found to have more than 0.1g of plastic found in their stomachs. This reflects the abundance of floating litter in their environment.

From sampling UK seafloor litter to date higher amounts of litter and plastic have been found per km^2 of seafloor in the Greater North Sea compared to the Celtic Seas. There were also higher amounts of seafloor litter in the southern parts of the Greater North Sea and Celtic Seas, which could be a result of increasing human pressures.

C2 Seabed subject to high pressure from human activity

Short description	This indicator will track changes in the distribution and intensity of human activity on the seabed. Surveys of human activities are used to create individual data layers showing the major types of human pressures impacting the seabed. For example, data from vessel monitoring systems showing fishing activity are integrated with other data to create a layer showing abrasion pressure on the seabed. The individual pressure layers are combined to create a single data layer to show the percentage of seabed subject to high pressure from human activity. The indicator is linked to the OSPAR indicator of seabed damage.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Ensuring seafloor habitats are productive and sufficiently extensive to support healthy, sustainable ecosystems.
Position in the natural capital framework	Pressure
Related reporting commitments	OSPAR Convention, UK Marine Strategy, EU Marine Strategy Framework Directive. Relevant to Sustainable Development Goal 14.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 as some further development is needed. Analytical methods and some data on the extent of physical damage to predominant and special habitats are available.
Interim indicator (where applicable)	Not applicable

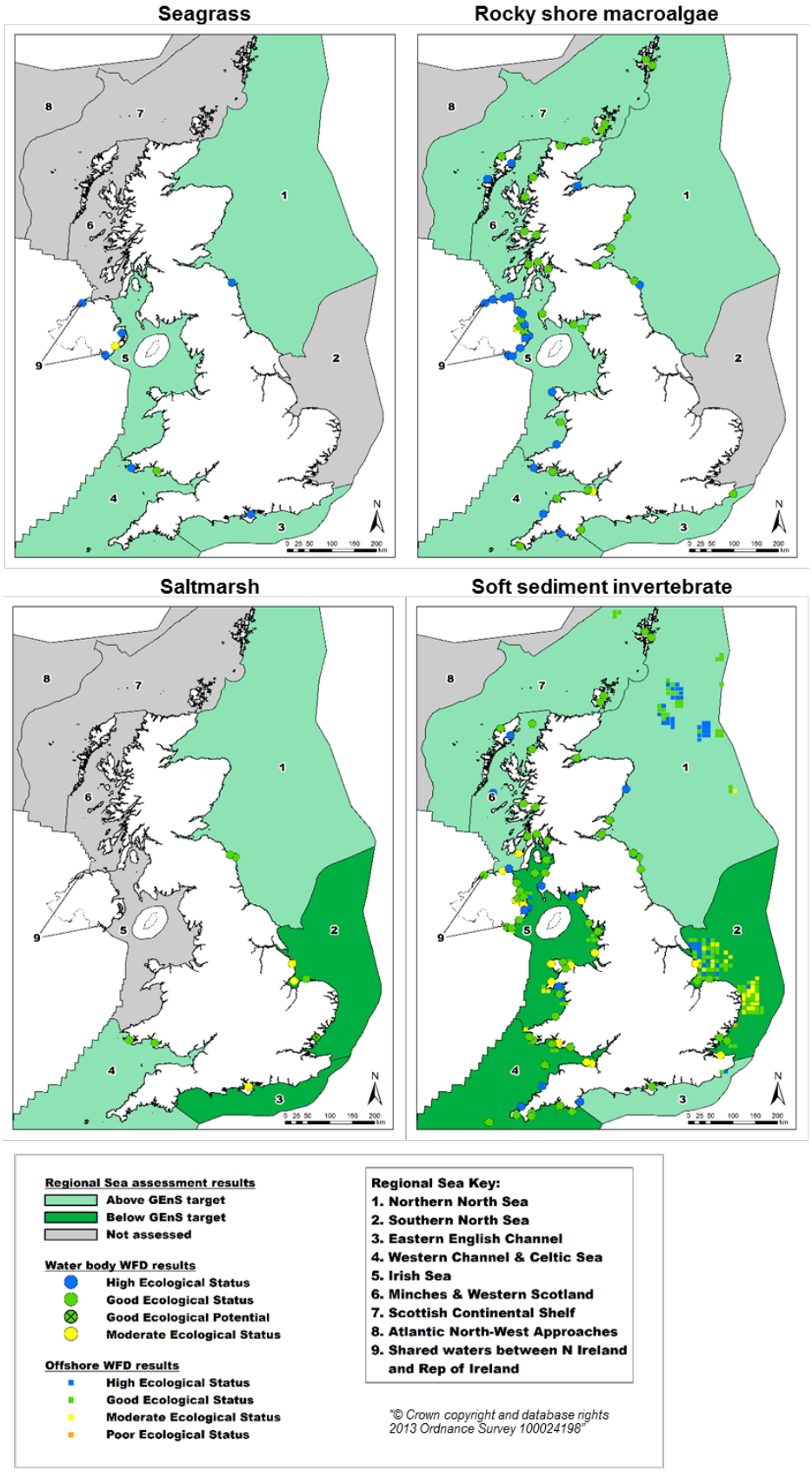
C3 Diverse seas: status of mammals, birds and fish

Short description	This indicator of diverse seas will track changes in the Good Environmental Status (GES) of mammals, birds and fish. These assessments are based on changes in the status of species groups using data on species distribution, population size and condition. They are being developed and delivered for Descriptors 1 (biodiversity) of the Marine Strategy Framework Directive and through the OSPAR assessment process.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Reversing the loss of marine biodiversity and, where practicable, restoring it. Ensuring seafloor habitats are productive and sufficiently extensive to support healthy, sustainable ecosystems.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	OSPAR Convention; UK Marine Strategy, EU Marine Strategy Framework Directive, EU Habitats Directive, EU Birds Directive, International Council for Exploration of the Seas (ICES), Convention on Biological Diversity Aichi Target 6. Relevant to Sustainable Development Goal 14.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020 as some further development is needed. Analytical methods and some data on Benthic habitats are available. The indicator will be kept under review during the development of D5 Conservation status of our native species as some elements of this indicator may ultimately be included in D5.
Interim indicator (where applicable)	Not applicable

C4 Diverse seas: condition of seafloor habitats

Short description	This indicator of diverse seas evaluates the condition of seafloor habitats. Seafloor habitats assessed include soft sediment invertebrate communities and intertidal communities of seagrass, rocky shore macroalgae and saltmarshes. Once developed the indicator will assess the impact of human activities on seafloor habitats. Data for the seafloor habitat condition indicators comes from surveys undertaken on a 6-yearly cycle using methods developed under the Water Framework Directive (WFD). These include the intertidal rocky shore macroalgae tool, intertidal seagrass tool, Infaunal Quality Index, and intertidal saltmarsh tool.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Reversing the loss of marine biodiversity and, where practicable, restoring it. Ensuring seafloor habitats are productive and sufficiently extensive to support healthy, sustainable ecosystems.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	OSPAR Convention; UK Marine Strategy Regulations EU Habitats Directive, EU Water Framework Directive (WFD). Relevant to Sustainable Development Goal 14.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows target achievement for regional sea assessment, status of coastal water bodies and offshore unit assessments. The assessments used for this indicator have been reported under the UK Marine Strategy Part One, 2019. Data on Benthic habitats, analytical methods and assessment are available. Further methodological development of this indicator is required and the indicator's format will evolve.
Interim indicator (where applicable)	**C4 (interim) UK Maps showing target achievement for regional sea assessments, status of coastal water bodies and offshore unit assessment using four different seafloor habitats and three indicators of status**

C4 (interim) UK maps showing target achievement for regional sea assessments, status of coastal water bodies and offshore unit assessment



Note: Inshore data, predominantly collected under the WFD between 2010 and 2015, were used to assess seagrass, rocky shore macroalgae and saltmarsh habitats. Soft sediment invertebrates were assessed using inshore (predominantly WFD) and offshore (non-WFD) intertidal and subtidal data collected between 2010 and 2015.

Trend description: The UK Marine Strategy target for intertidal seagrass communities were met for all Regional Seas. Four Regional Seas were not assessed due to either an absence of intertidal habitat which is required by the indicator or an absence of existing WFD classification data. The natural conditions required for seagrass beds to exist limits their occurrence in coastal water bodies. However for those contributing, the quality threshold of 'Good' or 'High' Ecological Status was met for the majority of surveyed locations. The Irish Sea had the lowest extent of intertidal seagrass meeting the quality target, although the total remains markedly above the indicator quantity threshold of 85%.

The UK Marine Strategy target for the intertidal rocky shore macroalgae was met for all seven assessed Regional Seas. Two Regional Seas were not assessed due to either an absence of intertidal habitat which is required by the indicator or an absence of existing WFD classification data.

The UK Marine Strategy target for the saltmarsh communities was largely met for the Celtic Seas and Northern North Sea but was not met for considerable areas of the Southern North Sea and the Eastern English Channel Regional Seas. Five Regional Seas were not assessed due to either an absence of intertidal habitat which is required by the indicator or an absence of existing WFD classification data.

The UK Marine Strategy target for soft sediment (benthic) invertebrate communities was largely met for most Regional Seas including the Minches and Western Scotland, Scottish Continental Shelf, Shared Waters between Northern Ireland and Republic of Ireland, Northern North Sea and Eastern English Channel. The Western Channel and Celtic Sea did not reach the target largely due to the inshore WFD classification results, while the failure of the Southern North Sea to meet the target can be attributed to the offshore results. The Irish Sea did not meet the target due to both inshore and offshore results. The Atlantic North-West Approaches was not assessed due to an absence of data.

C5 Diverse seas: condition of pelagic habitats

Short description	This indicator of diverse seas will track changes in the Good Environmental Status (GES) of open ocean (pelagic) habitats. The assessment is based on changes in plankton communities and changes in plankton biomass and abundance. The assessment is being developed and delivered for Descriptors 1 (biodiversity) of the UK Marine Strategy (Marine Strategy Framework Directive) and through the OSPAR assessment process. Existing analytical methods are under ongoing development to gain a better understanding of the effects of the key anthropogenic pressures and climatic drivers.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Reversing the loss of marine biodiversity and, where practicable, restoring it. Ensuring seafloor habitats are productive and sufficiently extensive to support healthy, sustainable ecosystems.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	OSPAR Convention; UK Marine Strategy (EU Marine Strategy Framework Directive), EU Water Framework Directive. Relevant to Sustainable Development Goal 14.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020 as further development work is needed. Analytical methods and some data on Pelagic habitats are available.
Interim indicator (where applicable)	Not applicable

C6 Diverse seas: status of threatened and declining features

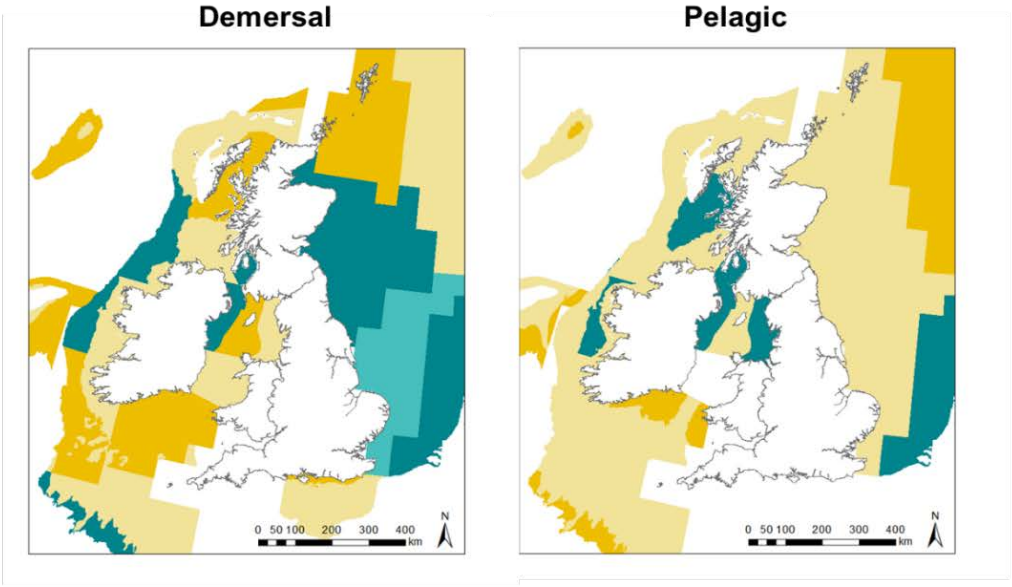
Short description	This indicator of diverse seas shows changes in the status of vulnerable features flagged for protection, either listed in national legislation or international agreements. These features include the features of conservation interest protected in Marine Protected Areas, Natural Environment and Rural Communities Act Section 41 habitats and species of principle importance for conservation, and the OSPAR threatened and declining features, amongst others. The overall indicator will be derived from the status of the individual features.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Reversing the loss of marine biodiversity and, where practicable, restoring it.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	OSPAR Convention, EU Marine Strategy Framework Directive, EU Habitats and Birds Directives, Convention on Biological Diversity Aichi Target 12. Relevant to Sustainable Development Goal 14.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 as further development is needed. Some data are available on Marine Protected Areas.
Interim indicator (where applicable)	Not applicable

C7 Healthy seas: fish and shellfish populations

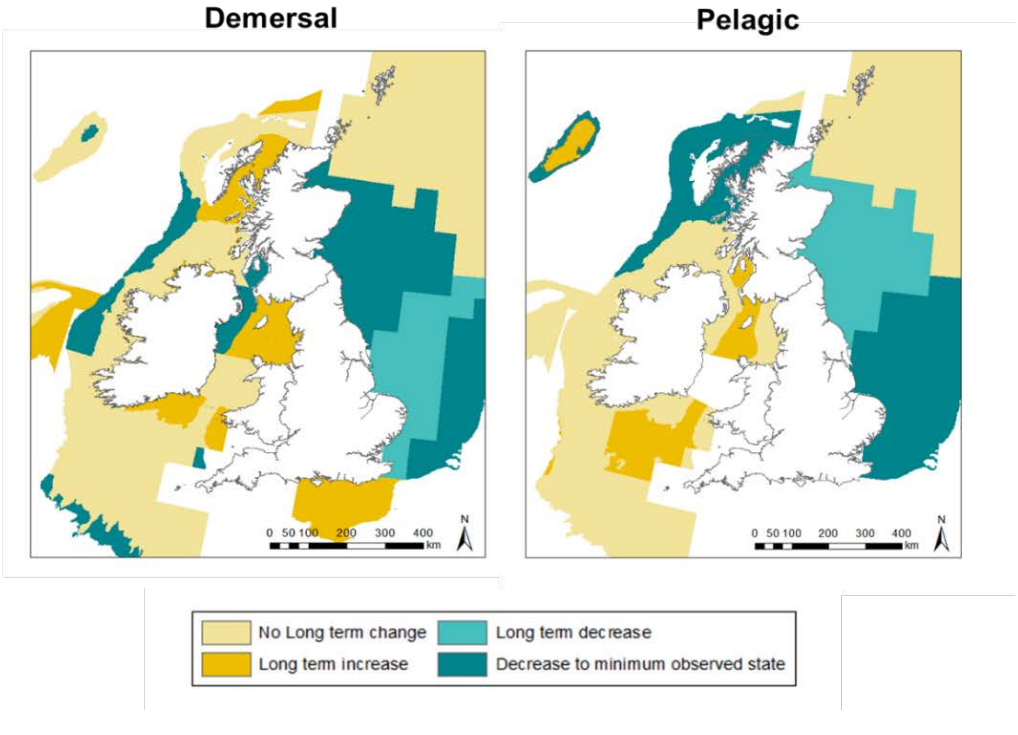
Short description	This indicator tracks the health of our seas using assessments of fish populations (here separated into demersal communities and pelagic communities). It consists of two metrics. The first metric looks at the size of the fish in a community (Typical Length) and the second looks at the composition of fish communities (Mean Maximum Length). Together these metrics tell us about the health and status of fish communities. A healthy fish community will be made up of species in the expected ratio of numbers of individuals, and with individual species showing the age classes and sizes consistent with a healthy population. Typical Length: a reduction in the proportion of larger, older, fish (as measured by Typical Length) of several species, suggests the top (predator) level of the food web is in poor condition. Mean Maximum Length: if the species that tend towards larger individuals are depleted and smaller-bodied species become more abundant (shown by a reduction in Mean Maximum Length), the species composition of the community can change, suggesting prolonged periods of pressure. When the community is dominated by slow growing species (as expected at low Maximum Mean Length), the size structure is limited in its ability to recover (reduced Typical Length).
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Making sure populations of key species are sustainable with appropriate age structures. Reversing the loss of marine biodiversity and, where practicable, restoring it. Ensuring that all fish stocks are recovered to and maintained at levels that can produce their maximum sustainable yield.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	OSPAR Convention, UK Marine Strategy Regulations, EU Water Framework Directive, International Council for Exploration of the Seas (ICES), Convention on Biological Diversity Aichi Target 6. Relevant to Sustainable Development Goal 14.
Geographical scope	UK (Celtic Seas and Greater North Sea)
Readiness and links to data	This indicator is not available for reporting in a finalised form. Further development of this indicator is required to include trophic guild biomass and therefore improve community classification. An interim indicator is presented

	here with communities classified as demersal or pelagic. The assessments used for this interim indicator have been reported under the UK Marine Strategy Part One, 2019. Data on fish populations, analytical methods and assessment are available.
Interim indicator (where applicable)	**C7 (interim) Size structure and species composition in fish communities**

C7a (interim) Summary of long-term changes in the typical length of demersal fish and pelagic fish communities in UK waters and surrounding areas



C7b (interim) Summary of long-term changes in the mean maximum length of demersal fish and pelagic fish communities in UK waters and surrounding areas



Note: Assessment period starts in the 1980s or 1990s and ends in 2015 or 2016 depending on the survey.

For the Typical Length maps:

- Long term increase: an increase in the size of fish within the community over the period
- No long-term change: no change in the size of fish
- Long term decrease: the size of fish in the community has decreased from an earlier period but has increased from a more recent period.
- Decrease to minimum observed state: the fish in the community are currently at the lowest size recorded.

For the Mean Maximum Length maps:

- Long term increase: the fish are shifting back towards larger species
- No long-term change: no change in the composition of fish communities
- Long term decrease: more smaller species than in an earlier period but less than in a more recent one.
- Decrease to minimum observed state: the community has the highest proportion of small species recorded.

Trend description: In the Channel, northern North Sea and the eastern Irish Sea, the health of the demersal fish community has improved since the 1990s, with an increasing contribution of species that attain a large size (Typical Length).

In the central and southern North Sea and on the shelf edge to the west of Scotland, the balance of species within demersal communities, relative to the early 1980s, has shifted towards smaller bodied fish (low Typical length) and smaller species (low Mean Maximum Length), and so these communities are in poorer health. There has been no long-term change in Mean Maximum Length of demersal fish communities in the northern North Sea.

In contrast, no change in the Typical Length in the pelagic fish community is evident. Within the southern and central North Sea, the Mean Maximum Length of pelagic fish communities is declining suggesting the proportion of large or slow growing species is declining. There is no long-term change in the Mean Maximum Length in the northern North Sea.

While fishing is the most likely driver of the declines in the pelagic and demersal communities, it is unclear whether they are caused by exploitation only or whether there are possible alternative causes. For example, global warming may have caused an influx of smaller species or smaller fish.

C8 Healthy seas: marine food webs functioning

Short description	This indicator will track the health of our seas using metrics on the size, structure and function of different feeding (trophic) levels in marine food webs. The indicator will focus on open ocean (pelagic) habitats and populations of key species groups within the food web. These show whether ecosystems are healthy and are being used sustainably. Currently, the metrics within this indicator are being developed for the Marine Strategy Framework Directive Descriptors 1 (biodiversity), 4 (food webs) and 6 (seafloor integrity) and the OSPAR Convention.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Making sure populations of key species are sustainable with appropriate age structures. Reversing the loss of marine biodiversity and, where practicable, restoring it. Ensuring that all fish stocks are recovered to and maintained at levels that can produce their maximum sustainable yield.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	OSPAR Convention, UK Marine Strategy, EU Marine Strategy Framework Directive, EU Water Framework Directive, International Council for Exploration of the Seas (ICES), Convention on Biological Diversity Aichi Target 6. Relevant to Sustainable Development Goal 14.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020 as significant development is required. Research is underway to further develop the food web metrics that constitute this indicator. Analytical methods and some data on food webs are available.
Interim indicator (where applicable)	Not applicable

C9 Healthy seas: seafloor habitats functioning

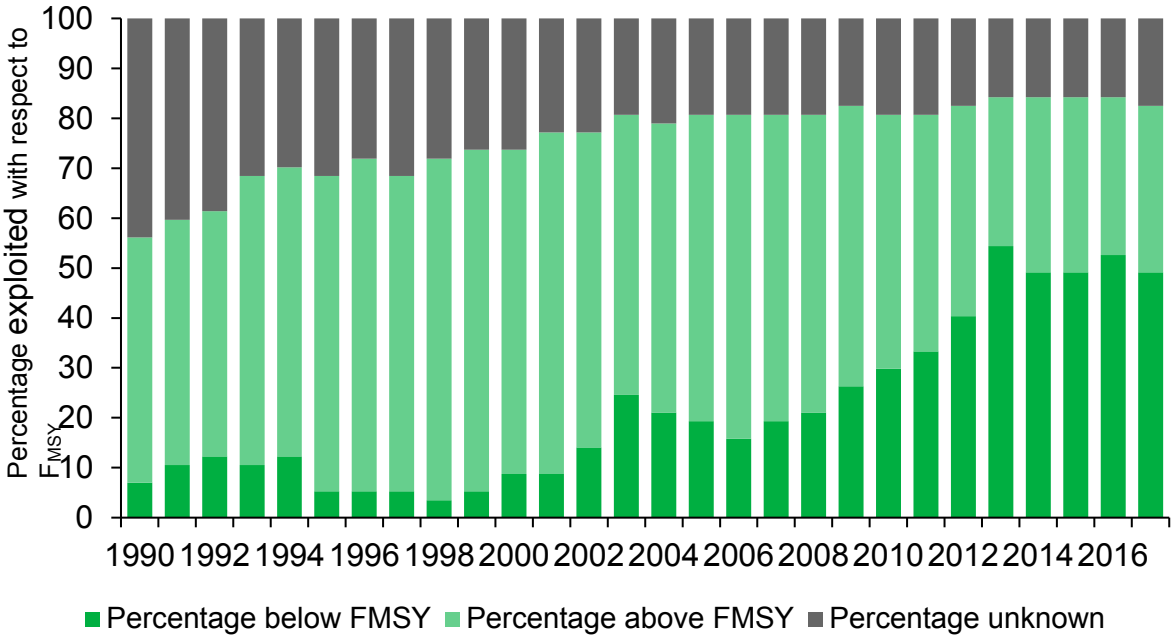
Short description	This indicator shows changes in the natural functionality and extent of seafloor habitats able to support a healthy and productive ecosystem. The indicator is linked to UK interpretation of the Marine Strategy Framework Directive Descriptor 6 (Seafloor Integrity). The indicator will be derived from the integration of metrics of individual broad habitat types and selected vulnerable habitats. Well-functioning seafloor habitats (physically and structurally) are both productive and sufficiently extensive, to carry out natural functionality, including the necessary ecological processes which underpin ecosystem goods and services, and are capable of supporting a healthy and sustainable ecosystem for the long term.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Ensuring seafloor habitats are productive and sufficiently extensive to support healthy, sustainable ecosystems.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	OSPAR Convention, UK Marine Strategy (EU Marine Strategy Framework Directive), EU Habitats and Birds Directives, WFD.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020 as further development is needed. Analytical methods and some data on benthic habitats are available.
Interim indicator (where applicable)	Not applicable

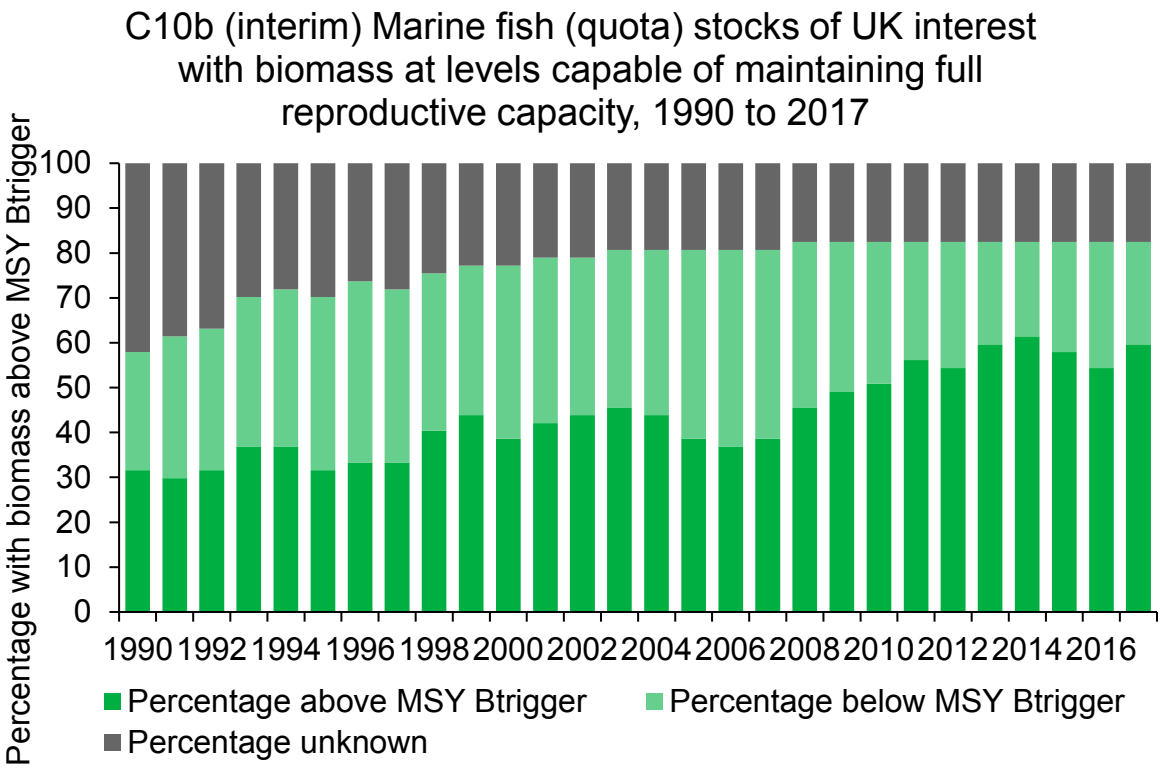
C10 Productive seas: fish and shellfish stocks fished sustainably

Short description	This indicator shows changes in the proportion of commercial fish and shellfish stocks that are within safe biological limits and fished sustainably. The indicator is derived from assessments of individual stocks. Where available, the assessment of stocks against their maximum sustainable yield will be incorporated into the overall indicator. The indicator is linked to UK Marine Strategy Descriptor 3 (Commercial Fish and Shellfish) and the Convention on Biological Diversity sustainable fisheries indicators and is derived from International Council for the Exploration of the Sea and national stock assessments. The data presented in this indicator for the proportion of marine fish quota stocks of UK interest exploited above or below maximum sustainable yield were presented as part of indicator E9 Percentage of our seafood coming from healthy ecosystems, produced sustainably in 2019. These data are now presented here in C10 because they are specific to fish and shellfish rather than reflecting the health of the marine ecosystem as a whole.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Ensuring that all fish stocks are recovered to and maintained at levels that can produce their maximum sustainable yield.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	UK Marine Strategy Regulations (2010), Convention on Biological Diversity Aichi Target 6. Relevant to Sustainable Development Goals 12 and 14.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows: the percentage of stocks fished at or below the level capable of producing Maximum Sustainable Yield (MSY); and the percentage of stocks with biomass above the level capable of producing MSY. The assessments used for this interim indicator have been reported under the UK Marine Strategy Part One, 2019. Data on commercially exploited fish and shellfish, analytical methods and assessment are available. Data are also published annually in the UK Biodiversity Indicators. National shellfish stocks assessments are updated on a 3-year cycle. These data are not included in the interim indicator but were published as part of the UK Marine

	Strategy Part One (2019) and will be included in the final indicator. Once population age and size distribution assessments are developed, they will be included to provide further detail for this indicator.
Interim indicator (where applicable)	**C10 (interim) Marine fish (quota) stocks of UK interest (a) harvested sustainably and (b) with biomass levels capable of maintaining full reproductive capacity**

C10a (interim) Marine fish (quota) stocks of UK interest harvested sustainably, 1990 to 2017





Source: Centre for Environment, Fisheries & Aquaculture Science; International Council for the Exploration of the Sea

Note: The above figure is based on 57 stocks of interest to the UK, derived from stock assessment reports**.** When new stock assessment data are incorporated into the model that compiles this time series, all data are subject to minor revisions.

Trend Description: Overall, there is evidence of a positive trend towards a greater proportion of stocks fished sustainably and within safe biological limits. The percentage of fish stocks (including *Nephrops*) fished at or below levels capable of producing maximum sustainable yield (F_{MSY}) has increased from 7% in 1990 to 49% in 2017.The percentages fished above F_{MSY} and at unknown levels relative to F_{MSY} have both decreased over the same time period. In the most recent year of assessment (2017), there was a 6.7% decrease in the percentage of stocks with fishing pressure below F_{MSY} due to data availability and consequently more stocks were classified as “unknown”.

To maintain the reproductive capacity of stocks, each stock’s spawning biomass (SSB) should be at or above the level capable of producing maximum sustainable yield (i.e. MSY $B_{trigger}$). The percentage of stocks subject to quota management and achieving this goal has increased from 32% in 1990 to 60% in 2017.The percentages of stocks below MSY $B_{trigger}$ and the percentage of stocks with unknown SSB have both decreased between 1990 and 2017.

C11 Productive seas: status of sensitive fish and shellfish stocks

Short description	This indicator tracks changes in the abundance, distribution and condition of fish and shellfish species at risk of depletion. The indicator will be derived from individual species assessments; note that some species may also be included in C6 Diverse seas: status of threatened and declining features. The indicator will be assessed to account for the expected status in line with prevailing environmental conditions and not adversely impacted by human activity. The indicator is linked to the Marine Strategy Framework Directive Descriptor 1 biodiversity and OSPAR indicators.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Ensuring that all fish stocks are recovered to and maintained at levels that can produce their maximum sustainable yield.
Position in the natural capital framework	Asset condition – seas
Related reporting commitments	OSPAR Convention, UK Marine Strategy, EU Marine Strategy Framework Directive, Convention on Biological Diversity Aichi Target 6. Relevant to Sustainable Development Goals 12 and 14.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020 as further development is required. Analytical methods and some data on sensitive fish species are available.
Interim indicator (where applicable)	Not applicable

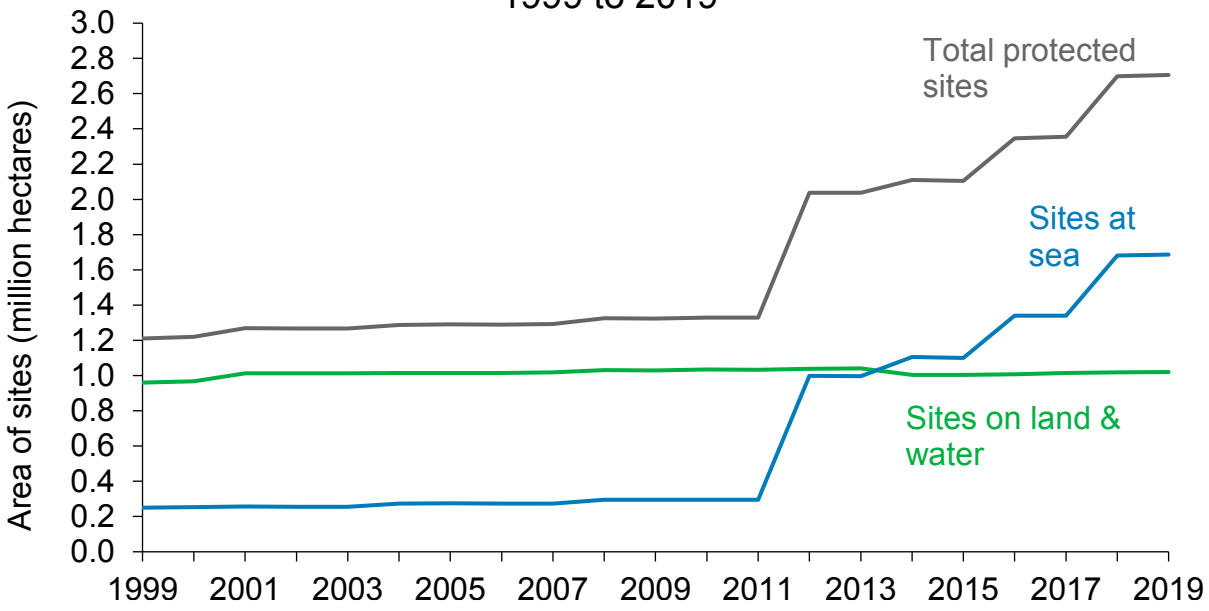
D1 Quantity, quality and connectivity of habitats

Short description	This indicator will measure changes in extent, condition, connectivity and function of terrestrial and freshwater habitats in England. 'Making space for nature', an independent review of England's wildlife sites and the connections between them by Professor Sir John Lawton, identified the need for more, bigger, better and more joined areas to build a more resilient ecological network for wildlife. Such resilience is necessary as an adaptation to pressures and drivers of change such as climate change. Data are available to measure some aspects of this indicator such as extent and condition of some habitats, but further work is required to assess habitats beyond protected sites, and reliable methods for measuring ecological connectivity need to be further tested. Some indicators of aspects of ecosystem functions and processes are available, but these are not comprehensive. New methods of Earth Observation (EO) together with development of measures of favourable conservation status and long-term site-based monitoring offer good opportunities to develop this indicator.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife Mitigating and adapting to climate change
Relevant target(s) in the 25 Year Environment Plan	Creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected area network. Implementing a sustainable and effective second National Adaptation Programme.
Position in the natural capital framework	Asset condition – species and ecological communities
Related reporting commitments	Contributions to EU Habitats Directive Article 17, Convention on Biological Diversity Aichi Targets 5 and 15. May provide evidence in support of Climate Change Risk Assessment and the Adaptation Sub Committee's assessment of the National Adaptation Programme, under the Climate Change Act (2008).
Geographical scope	England. Some data, for example EO data or site assessments may be disaggregated to local sites.
Readiness and links to data	This indicator is not available for reporting in 2020. Several elements of this indicator are published as England's biodiversity indicators (including data relating to local wildlife sites) but substantial further work is required to bring these elements together with new data to assess overall resilience.
Interim indicator (where applicable)	Not applicable

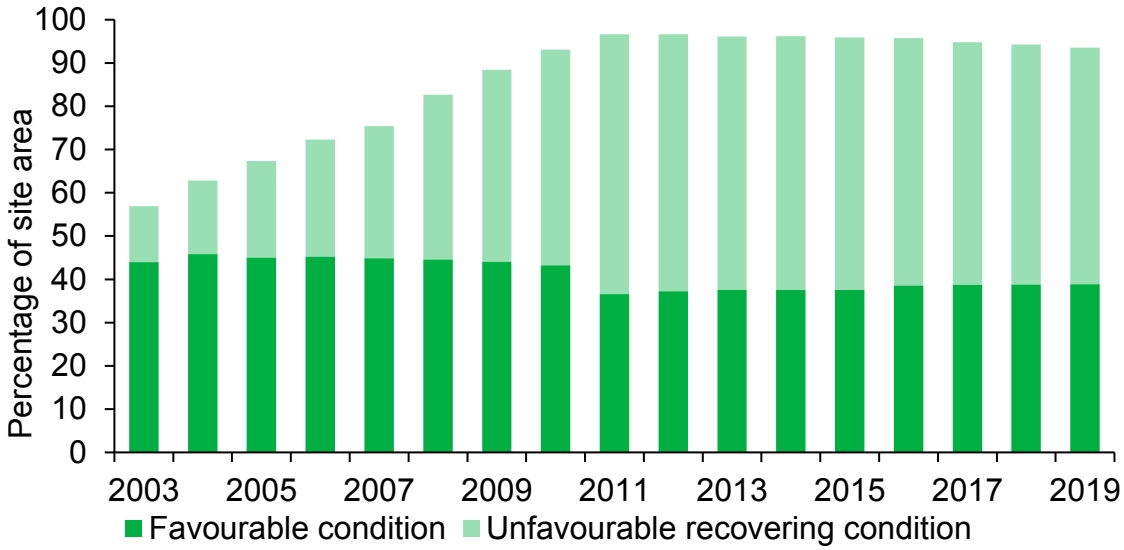
D2 Extent and condition of protected sites – land, water and sea

Short description	Protected sites are areas of land, inland water and the sea that have special legal protection to conserve important habitats and species in England. These include our Sites of Special Scientific Interest (SSSIs), Marine Protected Areas (MPAs), Special Areas of Conservation, Special Protection Areas and Ramsar sites. This indicator has 2 components: (a) extent (hectares) of protected sites on land, water and at sea and (b) condition of protected sites on land, water and at sea. Condition for terrestrial sites is assessed against relevant common standards agreed by the UK conservation agencies. Condition methodology for MPAs is currently under development.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Increasing the proportion of protected and well-managed seas, and better managing existing protected sites. Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term.
Position in the natural capital framework	Asset condition – species and ecological communities
Related reporting commitments	EU Habitats Directive Article 17; OSPAR; Convention on Biological Diversity Aichi Target 11.
Geographical scope	England. Data may be disaggregated to individual sites and features.
Readiness and links to data	This indicator is not available for publishing in 2020 in a finalised form. An interim indicator is presented here that shows the extent of protected areas (D2a) and condition of SSSIs (D2b) in England. Data for this interim indicator are published annually as part of England's biodiversity indicators. Work is underway to improve reporting for terrestrial and freshwater sites and some further work is required to implement a methodology for assessing the condition of MPAs so that an indicator of condition (D2b) that includes all sites on land, on water and at sea can be produced.
Interim indicator (where applicable)	**D2 (interim) Extent of protected sites (a) and condition of Sites of Special Scientific Interest (b) in England**

D2a (interim) Extent of protected sites in England, 1999 to 2019



D2b (interim) Condition of Sites of Special Scientific Interest in England, 2003 to 2019



Source: Natural England

Note: The extent of protected sites is the cumulative area assessed in March of each year shown.

Trend description: The total extent of land, water and sea protected in England through national and international protected areas increased from 1.2 million hectares in 1999 to 2.7 million hectares in 2019. The area of sites at sea has increased substantially, by more

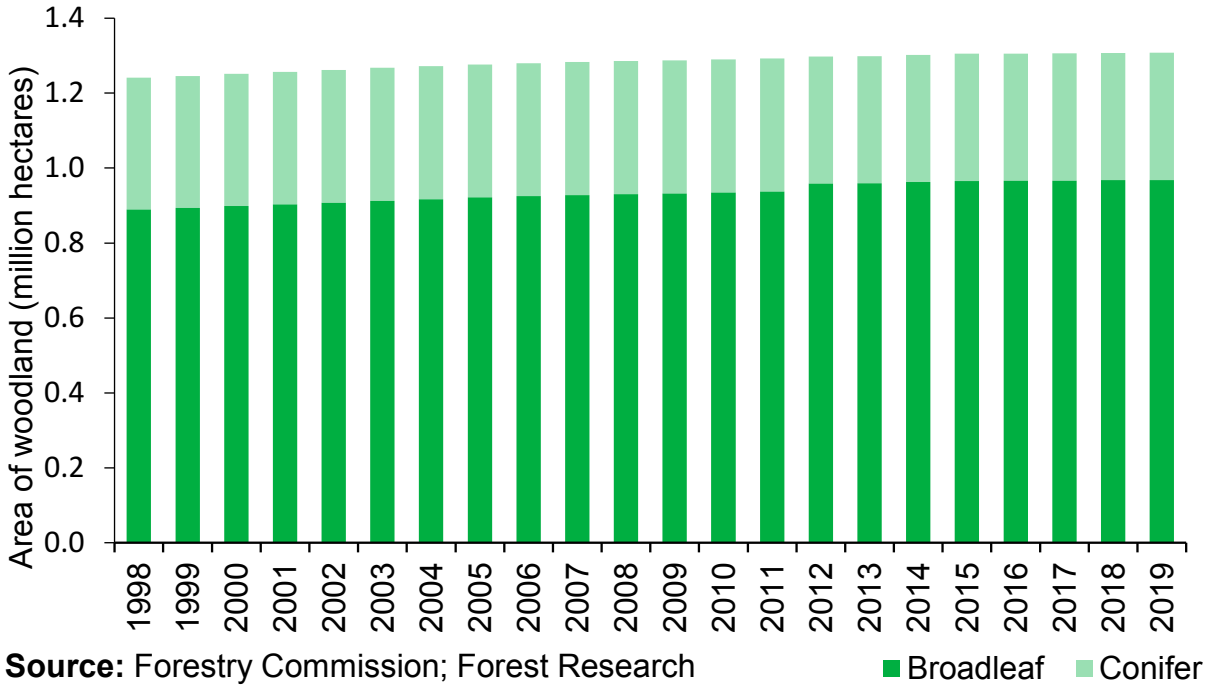
than 5 times since the time series began in 1999 although the majority of this increase took place between 2011 and 2018. The area of sites on land and water has remained relatively stable over time, increasing by 6% between 1999 and 2019.

There has been a net decrease in the area of SSSIs in favourable condition; down from 44% in 2003 to 38.9% in 2019. The sudden drop in the area of SSSIs in favourable condition from 43.2% in 2010 to 36.6% in 2011 was largely due to a more rigorous application of the ‘Common Standard for Monitoring’ protocols in assessing feature condition. However, over the past 8 years, there has been a small increase in the area in favourable condition, from 36.6% in 2011 to 38.9% in 2019. The area of SSSIs in unfavourable recovering condition has increased substantially from 13% in 2003 to 54.7% in 2019.

D3 Area of woodland in England

Short description	This indicator shows change in the area of broadleaved and conifer woodland in England. Woodland as defined for the National Forest Inventory is land under stands of trees with a minimum area of 0.5 hectares, a width of at least 20 metres, and a canopy cover of at least 20% or having the potential to achieve this. The definition relates to land use, rather than land cover, so integral open space and areas of felled trees that are awaiting restocking (i.e. replanting) are included as woodland. Woodland is a key natural capital asset that provides many natural capital benefits, such as the provision of timber and other wood products, carbon storage, habitats for wildlife, and opportunities for exercise and recreation.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently Thriving plants and wildlife Enhanced beauty, heritage and engagement with the natural environment
Relevant target(s) in the 25 Year Environment Plan	Creating and Restoring 500,000 hectares of wildlife-rich habitat outside the protected sites network. Increasing woodland area in England in line with our aspiration of 12% cover by 2060.
Position in the natural capital framework	Asset condition – land; species and ecological communities
Related reporting commitments	Equivalent data at UK level are reported to the United Nations Food and Agriculture Organisation for its regular Forest Resources Assessment, and to Forest Europe for reporting to the Ministerial Conference on the Protection of Forests in Europe and publication in the State of Europe's Forests.
Geographical scope	England. The related National Forest Inventory woodland map geospatial Open Data can be disaggregated to any sub-national geography required.
Readiness and links to data	Updates are published annually in Forestry Statistics (Forest Research), with additional commentary on recent trends and new planting of trees in the quarterly Headline Key Performance Indicators reports (Forestry Commission).
Interim indicator (where applicable)	Not applicable

D3 Area of woodland in England, 1998 to 2019



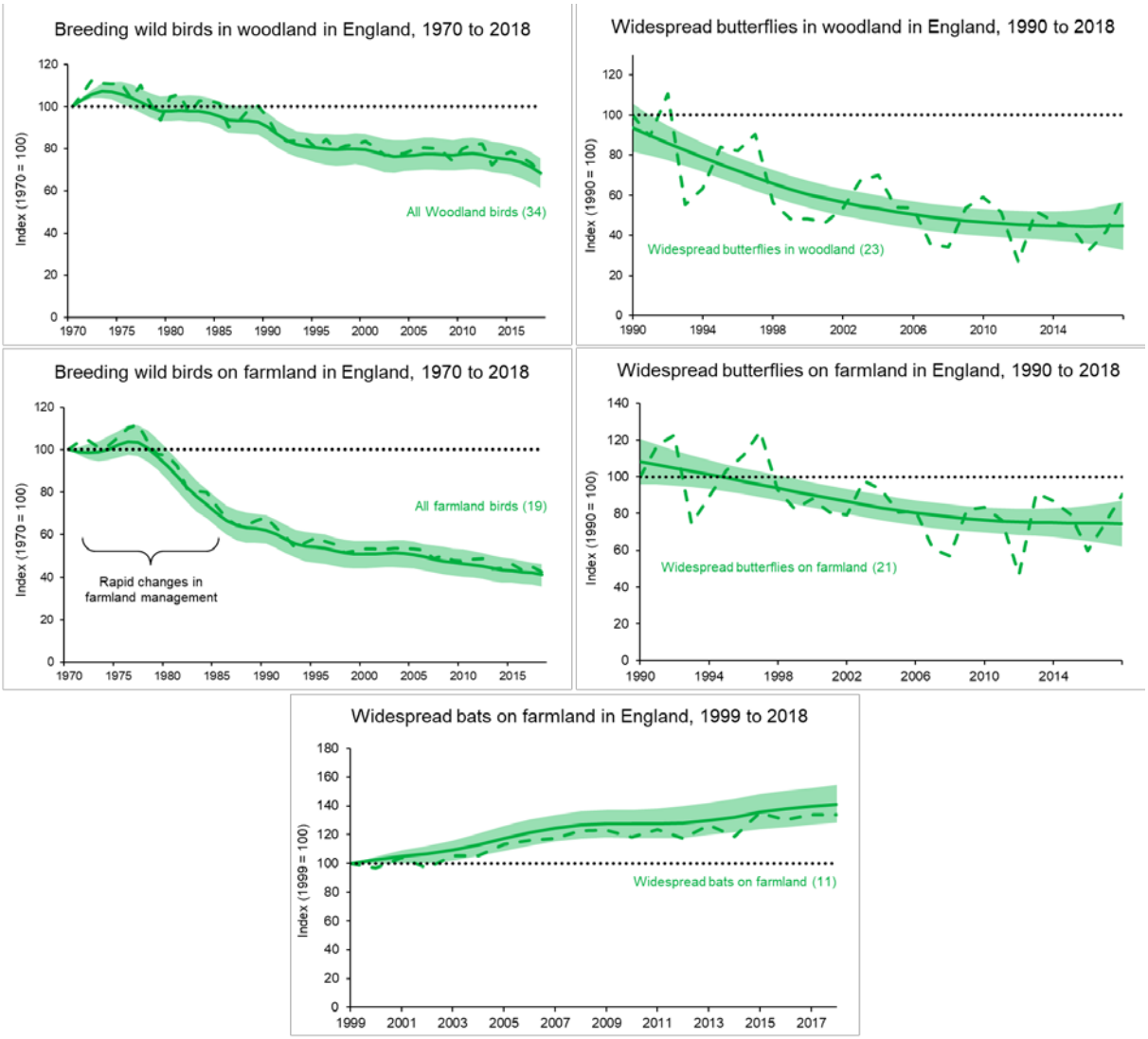
Source: Forestry Commission; Forest Research

Trend description: The total area of woodland in England has increased from 1.24 million hectares in 1998 to 1.31 million hectares in 2019, equating to an increase from 9.5% to 10.0% of the land area of England. This growth has been driven by an increase in broadleaf woodland; the area of conifer woodland in England has remained relatively static over the last 20 years.

D4 Relative abundance and/or distribution of widespread species

Short description	This indicator will use regularly collected data to track changes in relative abundance and/or distribution of species which are widespread and characteristic of different broad habitats in England including birds, bats, butterflies, moths and plants. The expectation is that this indicator will be expanded to include more species groups and habitat types. Trends in abundance or distribution of wild birds, bats, butterflies and moths are already published and methods for analysing trends in plants are being developed. Further work is needed to determine how best to combine and present trends for different species groups and habitats within this indicator.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Taking action to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human-induced extinction or loss of known threatened species in England and the Overseas Territories.
Position in the natural capital framework	Asset condition – species and ecological communities
Related reporting commitments	EU Habitats Directive Article 17; Convention on Biological Diversity Aichi Targets 7, 8 and 12.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows trends in the populations of breeding wild birds, widespread butterflies and bats in England. Some data are already published annually (wild birds, butterflies and bats), however further work is required to combine and present these data in this indicator. Methods for analysis of plant species are in development.
Interim indicator (where applicable)	**D4 (interim) Trends in abundance of wild birds, butterflies and bats in England**

D4 (interim) Trends in abundance of wild birds, butterflies and bats in England



Source: Bat Conservation Trust; British Trust for Ornithology; Butterfly Conservation; Centre for Ecology & Hydrology; Defra; Joint Nature Conservation Committee; Royal Society for the Protection of Birds

Trend description: The indicators for breeding wild birds in woodland and on farmland in England have both declined between 1970 and 2018; the latter experiencing steeper declines during the late 70's and early 80's. The indicators for widespread butterflies in woodland and on farmland in England have also declined between 1990 and 2018, the former more steeply than the latter. However, in recent years, both butterfly indicators have shown little change. The indicator for widespread bats on farmland in England has increased since the turn of the century. Whilst these overall trends are clear from the charts, they mask the trends for individual species within each index – some farmland and woodland species trends have increased whereas others have decreased over time. The charts show the unsmoothed (dashed lines) and smoothed (solid lines) trends for each of the species indices; the shaded areas represent the 95% confidence intervals for the smoothed trends; and the figure in brackets shows the number of species in the index.

D5 Conservation status of our native species

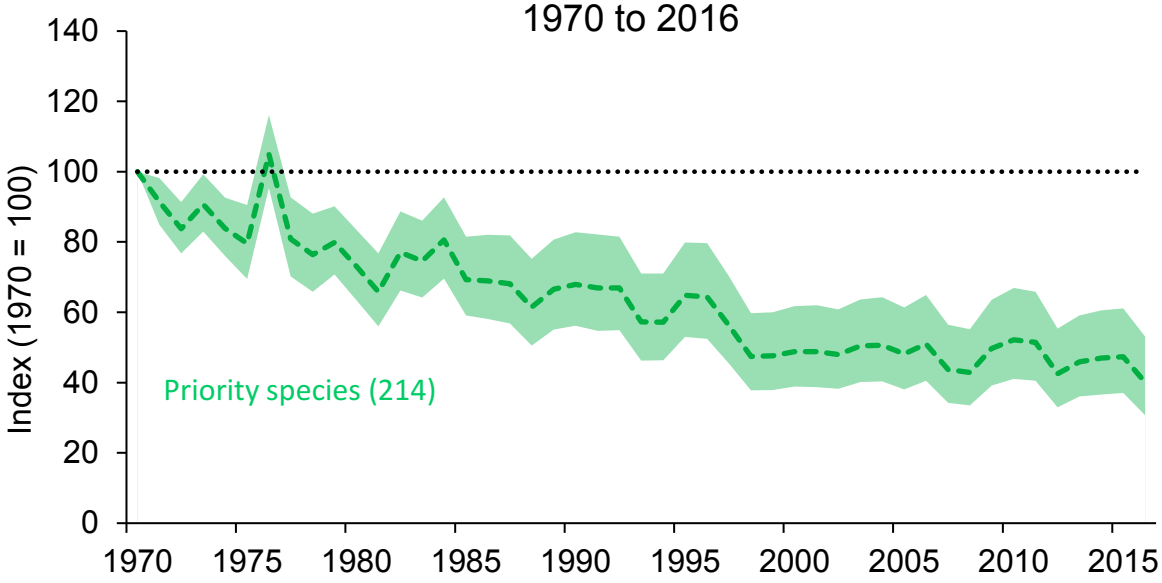
Short description	This indicator will track changes in the conservation status of terrestrial, freshwater and marine species using established international (IUCN[4]) categories and criteria. Species will be classified in several categories including: least concern; near threatened; vulnerable; endangered; critically endangered; and, regionally extinct. A simple index will be constructed to summarise the changes in numbers of species in each category. Baseline assessment data for approximately 10,000 species are available. This includes birds, mammals, reptiles, amphibians, some invertebrates, vascular plants, bryophytes, lichens and some fungi. Assessments are currently undertaken for Great Britain. Further assessments are required for a wider range of species and will need to be repeated (4 to 6-year intervals) in order to detect change in extinction risk for individual species and native species as a whole.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Taking action to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human-induced extinction or loss of known threatened species in England and the Overseas Territories.
Position in the natural capital framework	Asset condition – species and ecological communities
Related reporting commitments	Contributes to reporting under the Habitats and Species Conservation Regulation 2017, which meets our commitments under the EU Habitats Directive Article 17 and Convention on Biological Diversity Aichi Targets 12 and 13. Relevant to Sustainable Development Goal 15 (Life on land). May provide evidence in support of Climate Change Risk Assessment under the Climate Change Act (2008).
Geographical scope	Great Britain
Readiness and links to data	This indicator is not available for reporting in 2020. Further development is required to bring data together from a number of different sources. Available data on changes in abundance and distribution of native species are presented in indicators D4, D6 and D7.
Interim indicator (where applicable)	Not applicable

[4] International Union for Nature Conservation

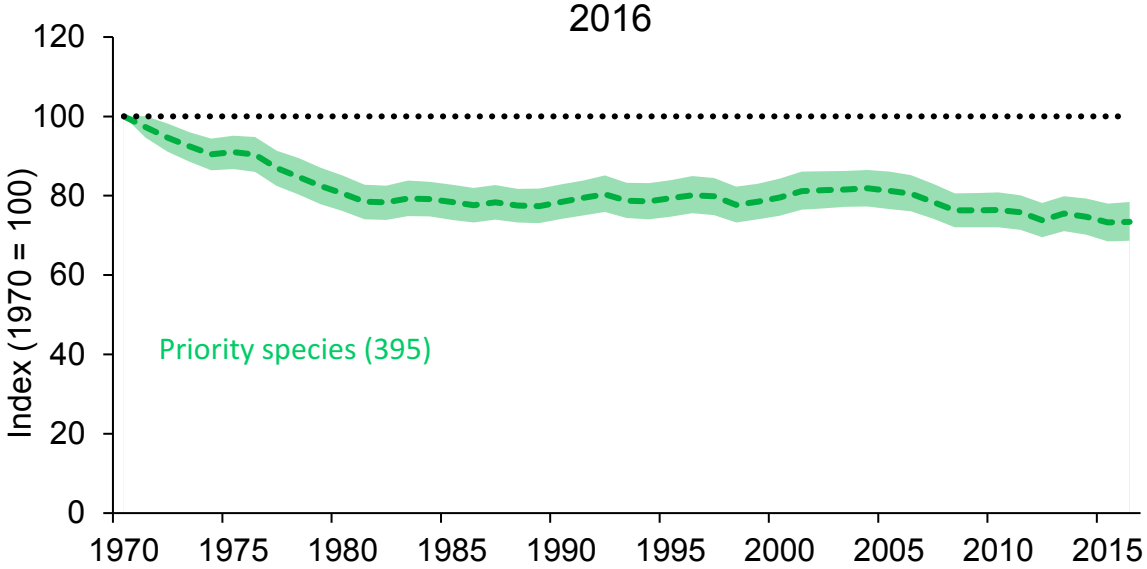
D6 Abundance and distribution of priority species in England

Short description	Priority species are defined by the Secretary of State under Section 41 of the Natural Environment and Rural Communities Act 2006 as species which are of principal importance for the purpose of conserving biodiversity in England. This indicator has 2 components: (a) changes in the relative abundance of those priority species for which abundance data are available; and, (b) changes in distribution of priority species (i.e. changes in the number of one kilometre grid squares in which species are recorded in any given year) for those priority species for which only distribution data are available.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Taking action to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human-induced extinction or loss of known threatened species in England and the Overseas Territories.
Position in the natural capital framework	Asset condition – species and ecological communities
Related reporting commitments	Relevant to Convention on Biological Diversity Aichi Target 12 and Sustainable Development Goal 15 Life on Land.
Geographical scope	England. The interim indicator is only available for the UK
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows trends in both the relative abundance and the distribution of priority species in the UK. The development of an indicator for England is in progress.
Interim indicator (where applicable)	**D6 (interim) Abundance (a) and distribution (b) of priority species in the UK.** An interim indicator is available at the UK level based on species that are included in one or more of the statutory species lists of each administration. Currently, for the UK, 214 priority species are included in the abundance trend and 395 priority species are included in the distribution trend.

D6a (interim) Relative abundance of priority species in the UK, 1970 to 2016



D6b (interim) Distribution of priority species in the UK, 1970 to 2016



Source: Bat Conservation Trust; British Trust for Ornithology; Butterfly Conservation; Centre for Ecology & Hydrology; Defra; Joint Nature Conservation Committee; People's Trust for Endangered Species; Rothamsted Research; Royal Society for the Protection of Birds; biological records data collated by a range of national schemes and local data centres

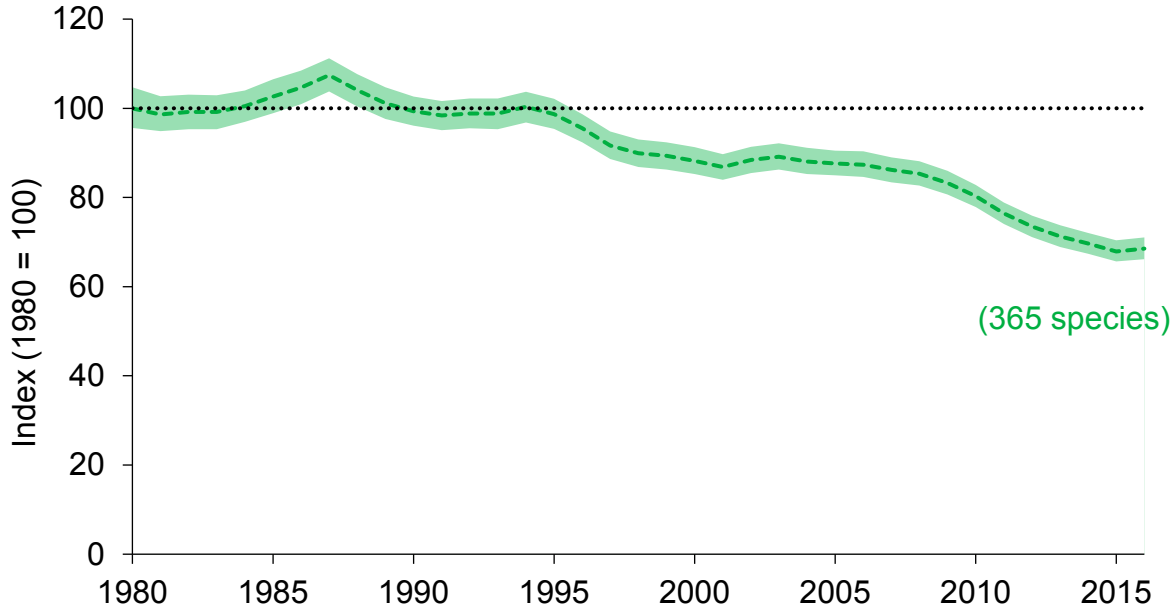
Trend description: By 2016, the index of relative abundance of priority species in the UK had declined to 40% of its value in 1970. In total, 63% of species included within the index decreased in abundance; 22% of species increased in abundance; and 16% showed no change. The shaded area represents the 95% confidence interval for the index.

Between 1970 and 2016, the index of distribution of priority species in the UK declined by 27%. The majority of this decline occurred in the 1970s and early 1980s; since then, the index has remained relatively stable. Overall, 37% of species included within the index decreased in their distribution; 16% increased in their distribution; and 46% showed no change. The shaded area represents the 90% credible interval for the index.

D7 Species supporting ecosystem functions

Short description	All species have a functional role within ecosystems such as photosynthesis, respiration, decomposition, nutrient cycling, predator-prey and symbiotic relationships such as pollination. Plants, fungi, algae, invertebrates and soil micro-organisms are particularly important. The presence, abundance and diversity of species are key factors in determining the resilience of ecosystems to environmental changes, including climate change and disease, and the maintenance of ecosystem services. Further research is required to develop this indicator, building on the existing pollinator indicator and defining species groups and functions for inclusion.
Relevant goal(s) in the 25 Year Environment Plan	Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Taking action to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human-induced extinction or loss of known threatened species in England and the Overseas Territories.
Position in the natural capital framework	Asset condition – species and ecological communities
Related reporting commitments	Relevant to Convention on Biological Diversity Aichi Targets 7 and 8. May also provide evidence in support of Climate Change Risk Assessment under the Climate Change Act (2008).
Geographical scope	England. The interim indicator is only available for the UK
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows trends in the distribution of UK pollinators. Significant further research and development is required to include a range of species groups important for supporting ecosystem functions in England.
Interim indicator (where applicable)	**D7 (interim) Changes in distribution of pollinators in the UK.** The interim indicator covers the changes in the distribution (occupancy of one kilometre grid squares) of bees and hoverflies in the UK. This indicator has been updated to include 14 additional species of hoverfly across the entire time series.

D7 (interim) Change in the distribution of pollinators in the UK, 1980 to 2016



Source: Bees, Wasps & Ants Recording Society; Hoverfly Recording Scheme; Biological Records Centre (supported by Centre for Ecology & Hydrology and Joint Nature Conservation Committee)

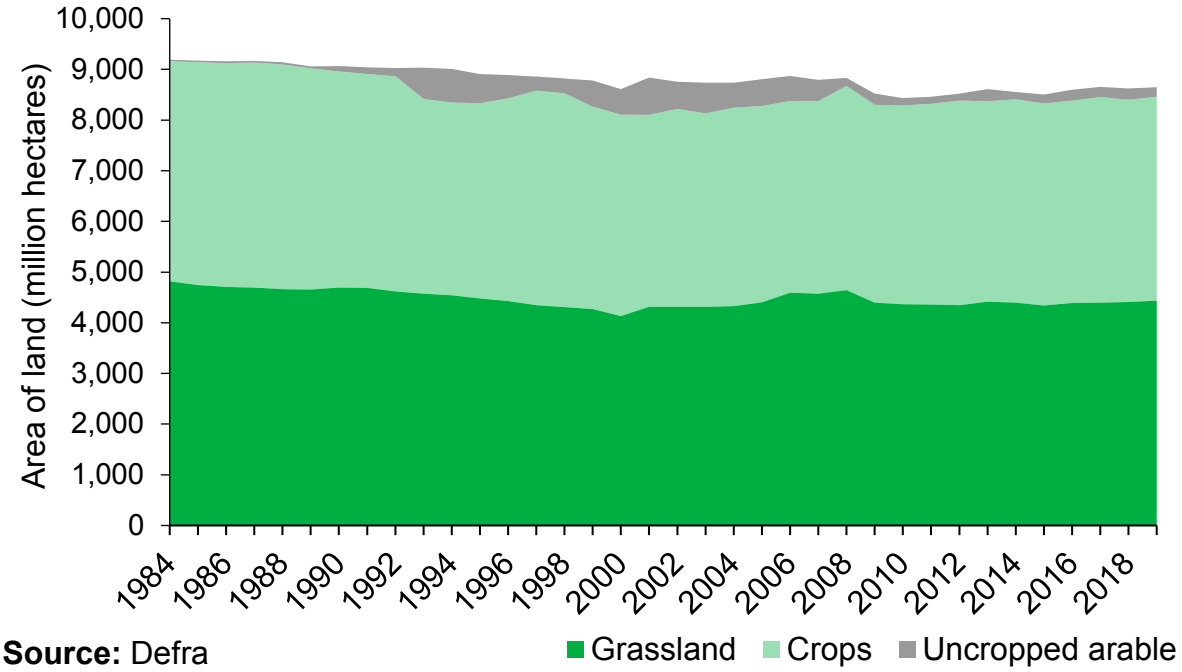
Trend description: There was an overall decrease in the UK pollinators index from 1987 onwards. In 2016, the index had declined by 31% compared to its value in 1980. This overall decline masks the trends of the individual species within the index, 44% of which have become less widespread, 14% of which have become more widespread and 42% of which have remained the same since the index began in 1980. The shaded area represents the 90% credible interval for the unsmoothed index.

E1 Area of productive agricultural land

Short description	Agriculture provides around 75% of the indigenous[5] food we eat and accounts for around 70% of land use. As well as being vital for food production, agriculture helps to shape the landscape, providing important recreational, spiritual and other cultural benefits. This indicator shows annual changes in land used for agriculture in 3 categories: grassland (including sole rough grazing); crops (including horticulture and perennial crops); and uncropped arable (land left fallow or under environmental management). Agricultural production and the associated land use and management are key drivers of the environmental impacts from the sector. A key policy challenge is to de-couple production from environmental impact. The indicator may be considered a measure of pressure on the environment, a measure of condition of the land asset, or a measure of service/benefit we derive from the land. The indicator is included in the framework to provide contextual information.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Ensuring that food is produced sustainably and profitably.
Position in the natural capital framework	Asset condition – land
Related reporting commitments	EU Common Agricultural Policy indicators.
Geographical scope	England
Readiness and links to data	Data on the structure of the agricultural industry are already published annually.
Interim indicator (where applicable)	Not applicable

[5] Food which can be produced in the climatic conditions of the UK.

E1 Area of productive agricultural land in England, 1984 to 2019



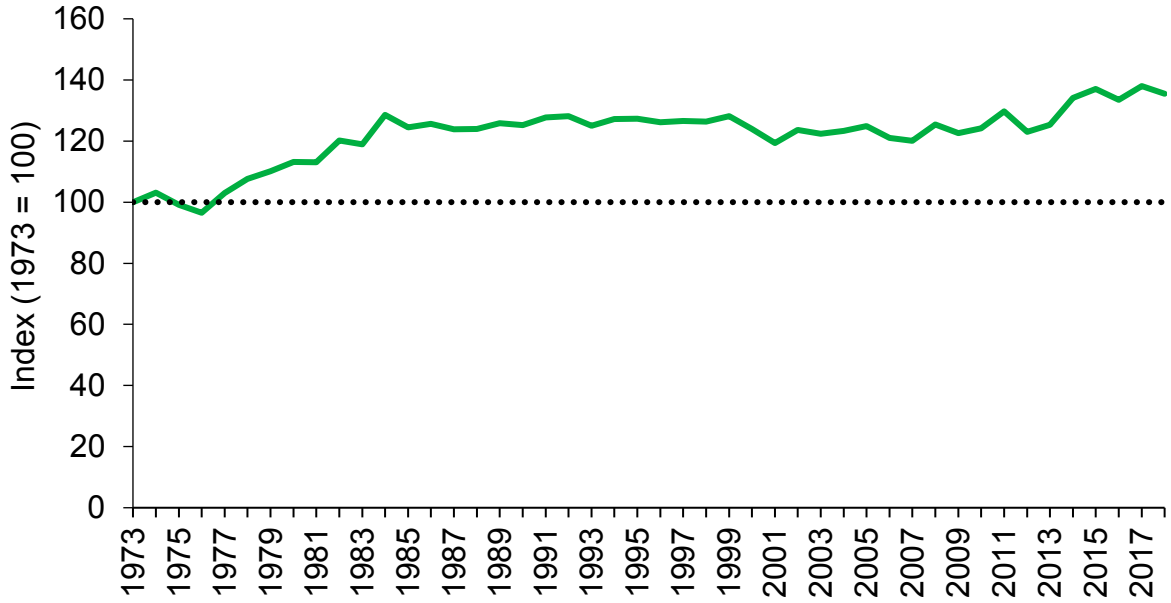
Source: Defra

Trend description: After a period of decline in the late 1980s, land use by agriculture has remained relatively stable. The split between crops and grazing has also remained relatively constant over this time.

E2 Volume of agricultural production

Short description	Farming produces a range of food, feed and fibre commodities. This represents a valuable output from the land and other resources used. Volume of agricultural production is considered to be a provisioning service provided by a range of natural capital assets (land, water, air, species and ecological communities). This indicator shows annual changes in the index of output volume which provides an overall measure of total production across the wide range of agricultural commodities. The index is calculated using agreed international standards. Farm practices and the use of inputs (particularly fertilisers and pesticides) directly influence the environmental pressures from farming including the quality, composition and availability of habitats and impact on air, water and soils. This indicator should therefore be viewed alongside the indicator E3 Volume of inputs used in agricultural production and other indicators in the framework relating to the condition of natural capital assets.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Ensuring that food is produced sustainably and profitably.
Position in the natural capital framework	Service/benefit
Related reporting commitments	EU Common Agricultural Policy indicators.
Geographical scope	England. The interim indicator is only available for the UK.
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows the volume of agricultural production in the UK. Indicators and data on the total factor productivity of the agricultural industry are already published annually as a National Statistic but further work is required to disaggregate these data from UK to England level.
Interim indicator (where applicable)	**E2 (interim) Volume of agricultural production in the UK**

E2 (interim) Volume of agricultural production in the UK, 1973 to 2018



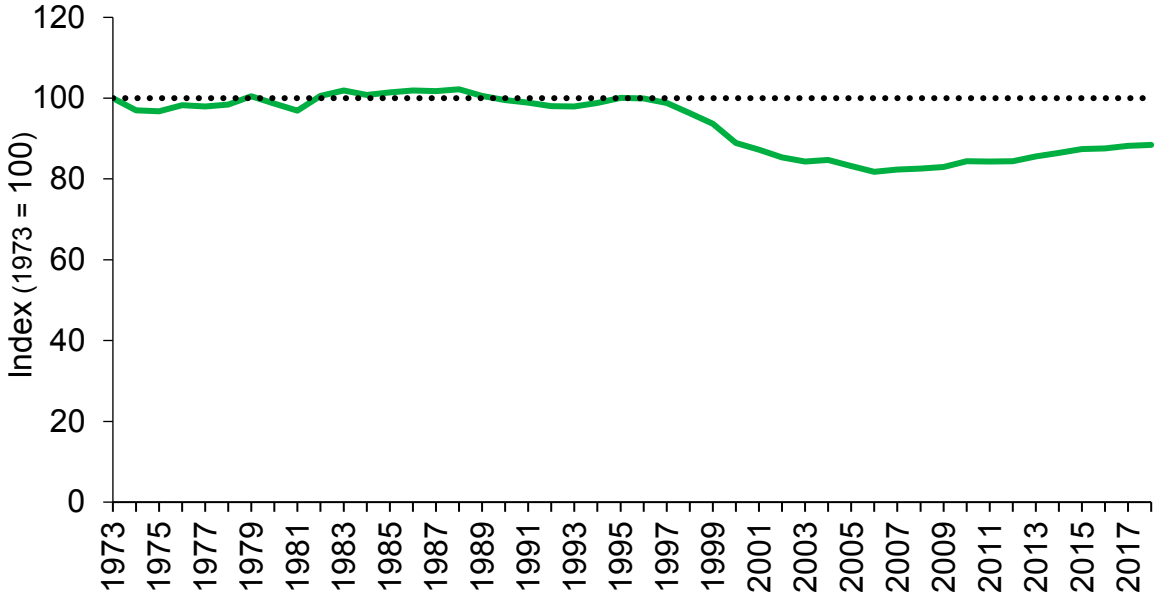
Source: Defra

Trend description: After a period of sustained increase from the late 1970s to the mid-1980s the overall volume of outputs has remained relatively stable, with some variation from year to year. Annual variations are generally driven by external factors, in particular weather, affecting growing and harvest and the variation in cropping driven by prices.

E3 Volume of inputs used in agricultural production

Short description	To produce food and feed, farming uses a range of inputs including fertilisers, pesticides, energy and animal feed. In addition, labour and land is required as well as depreciation of capital. Minimising the use of these inputs is an important policy driver to improve productivity and hence improve profitability whilst reducing the environmental impacts of farming. Farm practices and the use of inputs (particularly fertilisers and pesticides) directly influence the environmental pressures from farming including the quality, composition and availability of habitats and impact on air, water and soils. Volume of inputs may therefore be considered an indirect measure of pressure on a range of natural capital assets. This indicator should be viewed alongside the indicator E2 Volume of agricultural production and other indicators in the framework relating to the condition of natural capital assets. The index of the volume of inputs is an overall measure of the total inputs used with price effects removed. This includes all inputs including intermediate consumption, land, labour and depreciation of capital.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Ensuring that food is produced sustainably and profitably.
Position in the natural capital framework	Pressure
Related reporting commitments	EU Common Agricultural Policy indicators.
Geographical scope	England. The interim indicator is only available for the UK.
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows the volume of inputs used in agricultural production in the UK. Indicators and data are already published annually as a National Statistic but further work is required to disaggregate these data from UK to England level.
Interim indicator (where applicable)	**E3 (interim) Volume of inputs used in agricultural production in the UK**

E3 (interim) Volume of inputs used in agricultural production in the UK, 1973 to 2018



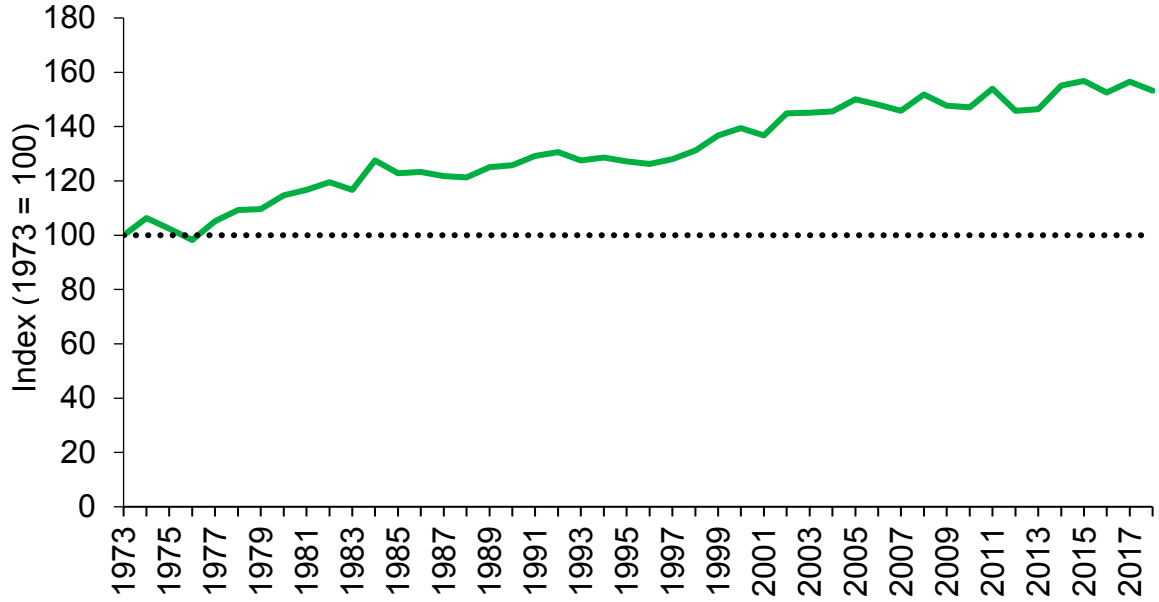
Source: Defra

Trend description: The index of volume of inputs has shown an overall decline since 1973. Most of this decline took place between the late 1990s and 2006 and since then there has been a slight increase in the volume of inputs used in agricultural production. The volume remains below historical levels.

E4 Efficiency of agricultural production measured by Total Factor Productivity

Short description	Total factor productivity is a well-established index of how efficiently farming inputs (fertilisers, labour etc.) are converted into outputs (wheat, milk etc.) giving an indication of changes in the efficiency and competitiveness of the agriculture industry. It is based on the ratio of inputs (indicator E3 Volume of inputs used in agricultural production) to outputs (indicator E2 Volume of agricultural production) such that the higher the value, the more efficiently inputs are converted into outputs. Data are based on volumes rather than values so that price effects are removed. The measure is known as Total Factor Productivity as it takes into account all output and input factors, including land, labour, intermediate consumption and depreciation of capital.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Ensuring that food is produced sustainably and profitably.
Position in the natural capital framework	Service/benefit
Related reporting commitments	EU Common Agricultural Policy indicators.
Geographical scope	England. The interim indicator is only available for the UK.
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows the total factor productivity for the UK. Indicators and data are already published annually as a National Statistic but further work is required to disaggregate these data from UK to England level.
Interim indicator (where applicable)	**E4 (interim) Efficiency of agricultural production measured by Total Factor Productivity in the UK**

E4 (interim) Efficiency of agricultural production measured by Total Factor Productivity in the UK, 1973 to 2018



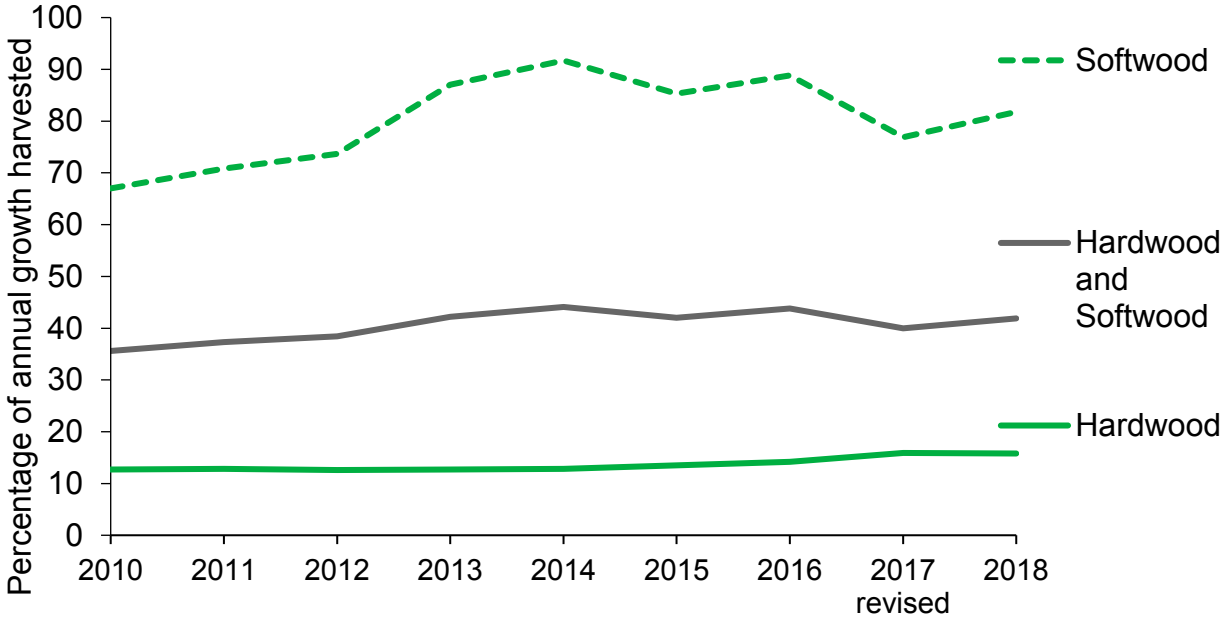
Source: Defra

Trend description: Overall productivity is driven by both the output and input components. Total factor productivity was 53% higher in 2018 than it was in 1973. There has been an overall long-term increase driven by both increased outputs and a fall in inputs, although the separate trends (see indicators E2 and E3) have followed different patterns. There is considerable annual variation, this variation being mainly driven by variation in output volumes.

E5 Percentage of the annual growth of trees in English woodlands that is harvested

Short description	This indicator shows changes in the percentage of annual softwood and hardwood growth in England that is harvested annually. Separate statistics are available for softwood, hardwood, and both in total. This indicator helps us to better understand the levels of, and trends in, the economic productive utilisation of English timber resources as a part of sustainable forest management policies and practices. The underlying data sources are National Statistics from Forest Research on UK Wood Production and Trade and National Forest Inventory forecasts of increase (increment) in the volume of wood that grows in England.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Increasing timber supplies.
Position in the natural capital framework	Service/benefit
Related reporting commitments	The component statistics that make up this indicator are provided, at UK level, to Forest Europe for reporting to the Ministerial Conference on the Protection of Forests in Europe and publication in the State of Europe's Forests.
Geographical scope	England
Readiness and links to data	Data are already published in the Forestry Commission's annual Key Performance Indicators report.
Interim indicator (where applicable)	Not applicable

E5 Percentage of the annual growth of trees in English woodlands that is harvested, 2010 to 2018



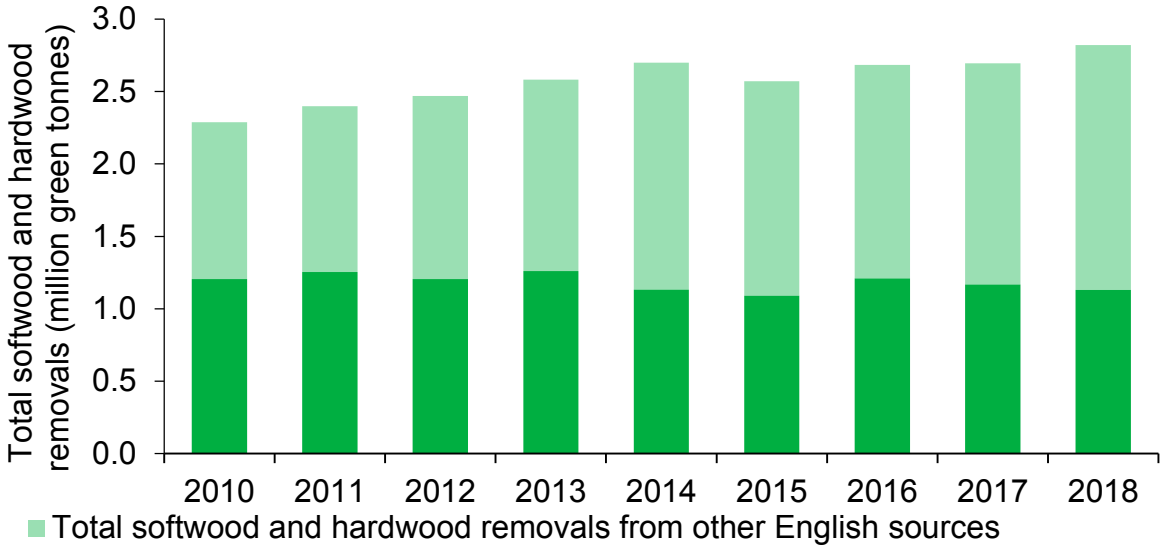
Source: Forestry Commission; Forest Research

Trend description: The percentage of softwood growth in England which is harvested has fluctuated between 67% and 92% over the 9 years for which these data are reported, reflecting sustained active management of softwood resources. The percentage of hardwood growth which is harvested remains much lower (between 13% and 16% over the same 9-year period), reflecting a lower level of active management of broadleaved woodland for timber supplies.

E6 Volume of timber brought to market per annum from English sources

Short description	This indicator shows changes in the volume of commercial timber brought to market from woodlands in England by Forestry England from the nation's forests, and by other owners of woodland. It is a measure of the level of active management of woodland assets for economic productive purposes. The data are National Statistics from Forest Research on UK Wood Production and Trade.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Increasing timber supplies.
Position in the natural capital framework	Service/benefit
Related reporting commitments	Related statistics on total UK fellings are provided to Forest Europe for reporting to the Ministerial Conference on the Protection of Forests in Europe and publication in the State of Europe's Forests.
Geographical scope	England
Readiness and links to data	Data are already published in the Forestry Commission's annual Key Performance Indicators report.
Interim indicator (where applicable)	Not applicable

E6 Volume of timber brought to market from English sources, 2010 to 2018



Source: Forestry Commission; Forest Research

Trend description: The total annual volume of softwood and hardwood timber brought to market in England has increased from 2.3 million green tonnes in 2010 to 2.8 million green tonnes in 2018. Total removals from the nation's forests managed by Forestry England have been relatively stable over this period, whereas removals from other English sources have increased by over 50%.

E7 Healthy soils

Short description	Healthy soils underpin the multiple functions of soils in food production, supporting wildlife, regulating water and regulating climate. More work is being done to define exactly what the indicator will include but it could include physical properties (such as a measure of soil structure), chemical properties (such as soil carbon, nutrients and pH), bare ground / soil and a measure of soil biological activity. This indicator is not limited to agricultural soils. Further development of statistically and scientifically robust national monitoring programmes may be needed to provide data for this indicator.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently
Relevant target(s) in the 25 Year Environment Plan	Improving our approach to soil management: by 2030 we want all of England's soils to be managed sustainably, and we will use natural capital thinking to develop appropriate soil metrics and management approaches.
Position in the natural capital framework	Asset condition – land
Related reporting commitments	May provide evidence in support of Climate Change Risk Assessment under the Climate Change Act (2008).
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 as significant further development work is required. Some data on aspects of soil health are already published but they do not provide a full baseline.
Interim indicator (where applicable)	Not applicable

E8 Efficient use of water

Short description	Climate change and a growing population will put increasing pressure on our water supplies. Ambitious reductions in water consumption and leakage have a significant role in maintaining secure supplies and protecting the environment. This indicator will show changes in the efficient use of water, focussing on leakage and per capita consumption. Leakage and per capita household consumption of water in England are existing metrics reported to Ofwat and the Environment Agency. For leakage, the indicator will track changes in water companies' progress as measured against Ofwat's existing target to reduce leakage by at least 15% by 2025 (from 2017/2018 levels). In the longer term, water companies will report against a target of 50% reduction in leakage by 2050.
Relevant goal(s) in the 25 Year Environment Plan	Efficient and sustainable use of natural resources Clean and plentiful water
Relevant target(s) in the 25 Year Environment Plan	Supporting Ofwat's ambitions on leakage, minimising the amount of water lost through leakage year on year, with water companies expected to reduce leakage by at least an average of 15% by 2025. Work with the water industry to set a personal consumption target and agree cost-effective measures to meet it.
Position in the natural capital framework	Service/benefit
Related reporting commitments	Relevant to Sustainable Development Goals 11 and 13. Leakage and per capita consumption figures are reported annually as part of a water company's statutory annual review of its water resources management plan.
Geographical scope	By water company area for those with customers wholly or mainly in England.
Readiness and links to data	This indicator is not ready for reporting in 2020. The companies will start reporting their leakage performance against Ofwat's 2025 target from summer 2020. It will be based on the average of the last three years of data and this will be used for reporting this indicator in 2021. Water companies already report leakage and per capita consumption figures annually.
Interim indicator (where applicable)	Not applicable

E9 Percentage of our seafood coming from healthy ecosystems, produced sustainably

Short description	This is a composite indicator that tracks the sustainability of seafood, fish and aquaculture products. It will combine metrics on production (covering harvesting and subsequent preparation), management and impact on the environment. The indicator will use the data collected for the management of fish stocks to assess whether harvesting rates remain within sustainable limits. It will use equivalent data for aquaculture production. These data on harvesting and production will then be integrated with data on the impact of these activities on the wider environment together with social and economic data to provide an assessment of the sustainability of our seafood. The data for the proportion of marine fish quota stocks of UK interest exploited above or below maximum sustainable yield that were presented in this indicator in 2019 are now presented as part of indicator C10 Productive seas: fish and shellfish stocks safe and environmentally sustainable. This revision has taken place because the data are specific to fish and shellfish rather than reflecting the health of the marine ecosystem as a whole.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Ensuring that all fish stocks are recovered to and maintained at levels that can produce their maximum sustainable yield.
Position in the natural capital framework	Service/benefit
Related reporting commitments	Oslo and Paris (OSPAR) Convention; EU Marine Strategy Framework Directive, EU Water Framework Directive, International Council for Exploration of the Seas (ICES), Convention on Biological Diversity (CBD). Relevant to Sustainable Development Goals 12 and 14.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020. Data on sustainably harvested fish stocks are already published annually, however further work is required to include a wider range of fish stocks and assess their maximum sustainable yield.
Interim indicator (where applicable)	Not applicable

F1 Disruption or unwanted impacts from flooding or coastal erosion

Short description	This indicator will track changes in the impacts of flooding and coastal erosion on people's lives. It will cover impacts on homes, businesses, communities, infrastructure, economy and people's health. This indicator will show impact of natural hazards on people and the benefits to society provided by the reduction in unwanted impacts, including through management of natural capital assets that help to regulate flooding and coastal erosion. The indicator will be sensitive to future climate change and effectiveness of adaptation. Scope and details of the indicator are subject to decisions on long-term Flood and Coastal Erosion Risk Management (FCERM) policy. Later this year, the government will set out its policies to tackle flood and coastal erosion risk in the long term, and the Environment Agency will publish the updated Flood and Coastal Erosion Risk Management Strategy for England.
Relevant goal(s) in the 25 Year Environment Plan	Reducing the risks of harm from environmental hazards
Relevant target(s) in the 25 Year Environment Plan	Boosting the long-term resilience of our homes, businesses and infrastructure.
Position in the natural capital framework	Service/benefit
Related reporting commitments	May provide evidence in support of Climate Change Risk Assessment under the Climate Change Act (2008). Relevant to Sustainable Development Goals 11 and 13.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 as significant further development is required. The Environment Agency does not routinely carry out economic cost analysis of all floods. However, it has published cost of flooding reports following the winter 2013/14 and winter 2015/16 floods. The managing flood and coastal erosion risk annual reports (from 1 April 2011) provide further context and statistics about the impacts of recent major flood events.
Interim indicator (where applicable)	Not applicable

F2 Communities resilient to flooding and coastal erosion

Short description	This indicator will show changes in the resilience of communities that are at risk of flooding and coastal erosion. This indicator, which requires development, will be sensitive to future climate change and show the need for adaptation. The scope of this indicator, particularly for coastal erosion, is contingent on data being available to track broader community resilience beyond that of property. Scope and details of this indicator are subject to decisions on long-term Flood and Coastal Erosion Risk Management (FCERM) policy. Later this year, the government will set out its policies to tackle flood and coastal erosion risk in the long term, and the Environment Agency will publish an updated Flood and Coastal Erosion Risk Management Strategy for England.
Relevant goal(s) in the 25 Year Environment Plan	Reducing the risks of harm from environmental hazards
Relevant target(s) in the 25 Year Environment Plan	Boosting the long-term resilience of our homes, businesses and infrastructure.
Position in the natural capital framework	Service/benefit
Related reporting commitments	May provide evidence in support of Climate Change Risk Assessments and the ASC's assessment of the National Adaptation Programme, under the Climate Change Act (2008). Relevant to Sustainable Development Goals 11 and 13.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 as significant further development is required. No data are currently available but more information on the consultation for the revised FCERM Strategy is published.
Interim indicator (where applicable)	Not applicable

F3 Disruption or unwanted impacts caused by drought

Short description	This indicator will focus on disruption to public water supply due to drought. Water companies have a statutory duty to produce a water resources management plan (WRMP) and drought plan. The WRMPs, prepared, published and maintained in accordance with provisions of the Water Industry Act 1991 and regulations and directions made under it, must set out how a company intends to maintain the balance between supply and demand for water over at least the next 25 years. This includes how it will manage the increasing pressures on our water supplies from a growing population and climate change, whilst protecting the environment. Water company drought plans, also prepared, published and maintained under Water Industry Act 1991, set out the operational actions the water companies will take before, during and after a drought to maintain a secure supply of water. This indicator will track changes in a Supply Demand Balance Index (SDBI), which will be reported by all water and sewerage companies from Summer 2022. The SDBI will be reported within annual reviews of the WRMPs and as part of the Environment Agency's Environmental Performance Assessment (EPA) report.
Relevant goal(s) in the 25 Year Environment Plan	Reducing the risks of harm from environmental hazards
Relevant target(s) in the 25 Year Environment Plan	Ensuring interruptions to water supplies are minimised during prolonged dry weather and drought Boosting the long-term resilience of our homes, businesses and infrastructure.
Position in the natural capital framework	Service/benefit
Related reporting commitments	Relevant to Sustainable Development Goals 11 and 13. Water and sewerage companies currently provide Security Of Supply Index (SOSI) data to the Environment Agency annually. This is published as part of the Environment Agency's EPA report and is part of the water companies' annual review of WRMPs.
Geographical scope	By water company area for those with customers wholly or mainly in England
Readiness and links to data	This indicator is not ready for reporting in 2020. SOSI data identifies whether water companies have a greater than planned risk of interruptions to public water supply during drought events. It illustrates those that need to take immediate action to increase resilience to

	the environmental hazard of drought. SOSI data is reported annually in the Environment Agency's annual EPA report. From 2022, all water and sewerage companies will report a new, improved index (SDBI) annually. We will therefore use the SDBI as the metric for this indicator and report on it from 2023.
Interim indicator (where applicable)	Not applicable

G1 Changes in landscape and waterscape character

Short description	This is a composite indicator of changes in landscape and waterscape character in England. It includes 3 key aspects: changes in landscape character in National Character Areas across all of England; changes in the public's perceptions of landscape character and quality; and, changes in environmental outcomes from our Designated Landscapes (National Parks and Areas of Outstanding Natural Beauty). The indicator will build on an approach that has been developed to assess the impacts of agri-environment schemes on landscape in 159 National Character Areas, including aspects such as field patterns and boundaries, traditional farm buildings, semi-natural habitats, agricultural land use, dark skies, historic features and woodland/tree cover. National Character Area profiles include Statements of Environmental Opportunity, which can be utilised to monitor changes in landscape character. Further work is required to include the consideration of waterscapes in this approach. We will also develop the ability to assess Designated Landscapes using this method. Information on changes in the public's perceptions of landscapes will be gathered by Natural England using a new people and nature survey that will begin collecting data in 2019/20. This will build on the Monitor of Engagement with the Natural Environment (MENE) and incorporate feedback from stakeholders as part of a strategic review. Extent and condition of Designated Landscapes will be monitored through the Monitoring Environmental Outcomes in Protected Landscapes dataset.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing beauty, heritage and engagement with the natural environment
Relevant target(s) in the 25 Year Environment Plan	Safeguarding and enhancing the beauty of our natural scenery and improving its environmental value while being sensitive to considerations of its heritage.
Position in the natural capital framework	Asset condition – land; freshwater; marine
Related reporting commitments	Reporting under the European Landscape Convention.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020. Substantial further development work is required to build

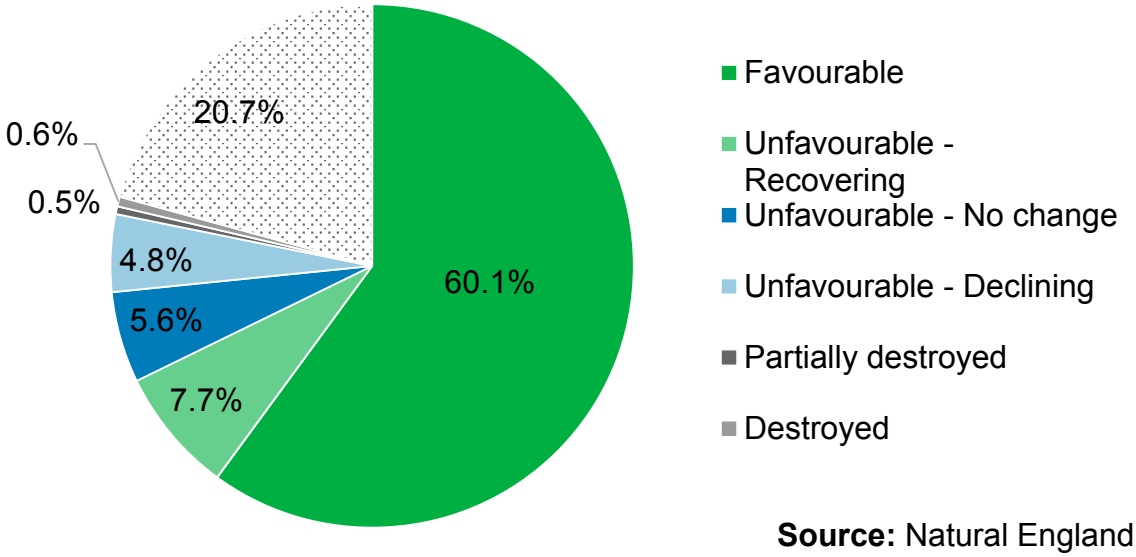
	on existing methods and information sources to assess changes in landscape and waterscape character.
Interim indicator (where applicable)	Not applicable

G2 Condition of heritage features including designated geological sites and scheduled monuments

Short description	This indicator consists of 2 measures that describe the condition of geological and geomorphological heritage features of Sites of Special Scientific Interest (SSSIs) and the condition of Scheduled Monuments. Heritage features enable us to understand how our landscapes have been formed and are an important aspect of landscape character that significantly contribute to our enjoyment and appreciation of the natural beauty. We have a particular responsibility to conserve heritage features of designated sites. The indicator will use information from SSSI condition assessments and information which supports the production of the annual Heritage at Risk Register. All geological (including geomorphological) features designated as SSSIs have first been subject to rigorous and systematic scientific assessment leading to their selection as nationally important Geological Conservation Review (GCR) sites. There are currently 1,150 SSSIs in England designated wholly, or in part, for their geology, encompassing 1673 features identified through the GCR. Many SSSIs contain more than one geological heritage feature. Monuments designated as Scheduled Monuments have been recognised by the Secretary of State as being nationally important. For a monument to be considered of national importance its surviving features, above and/or below the surface of the land or sea bed, must have a particular significance that relates to its historic, traditional, architectural, artistic and/or archaeological interest. There are currently 19,848 Scheduled Monuments in England.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing beauty, heritage and engagement with the natural environment
Relevant target(s) in the 25 Year Environment Plan	Safeguarding and enhancing the beauty of our natural scenery and improving its environmental value while being sensitive to considerations of its heritage.
Position in the natural capital framework	Asset condition – land; freshwater; marine
Related reporting commitments	Reporting under the European Landscape Convention.
Geographical scope	England, data for individual sites which may be presented at various geographical scales, including National Character Areas are also available.

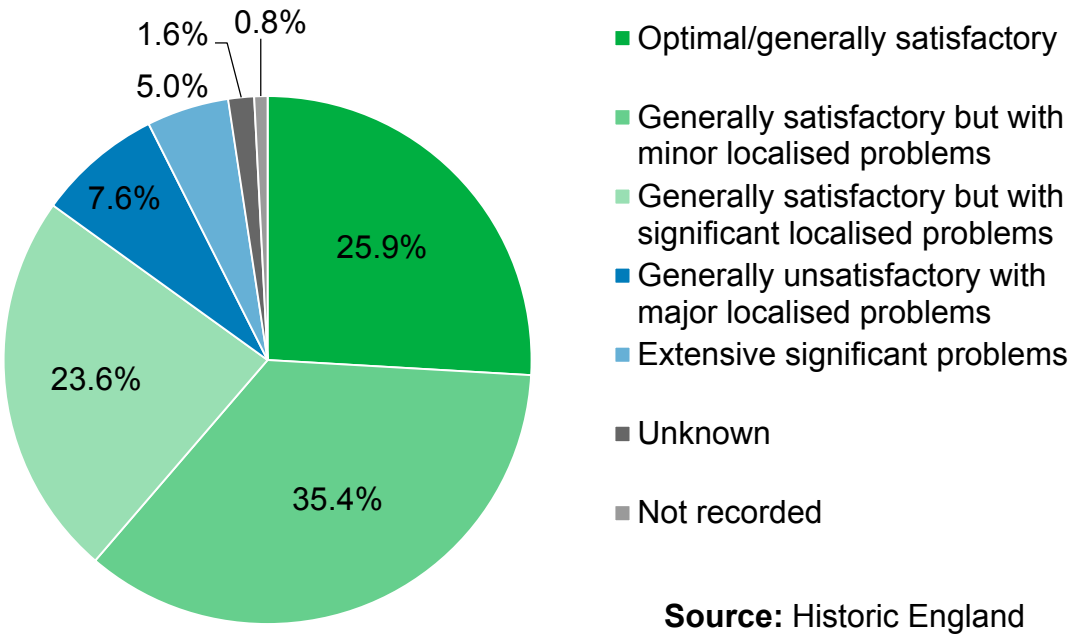
Readiness and links to data	Data are available on SSSI condition assessments (as a searchable database), and also as data download of SSSI Monitored features. Data on Scheduled Monuments at risk are also available. These data have been collated over an extended time period. It is not currently possible to update them in full on a regular basis.
Interim indicator (where applicable)	Not applicable

G2a Condition of geological and geomorphological heritage features of Sites of Special Scientific Interest in England, 2020



Source: Natural England

G2b Condition of Scheduled Monuments in England, 2020



Source: Historic England

Note: The first pie-chart shows the condition of 1,326 geological and geomorphological heritage features that have currently been assessed with 12.3% of features being assessed since 2013 and 64.3% being assessed since 2009; 21% of features are still to be assessed.

The second pie-chart shows the condition of 19,848 Scheduled Monuments; of these, 21.4% have been subject to new or updated condition assessments since 2013 and 36.6% have been assessed since 2009; 2% of features are still to be assessed.

Trend description: In total, 60% of all designated geological features have been assessed as in favourable condition. A further 8% have been assessed as unfavourable but recovering. Approximately 1% have been destroyed or partially destroyed.

In total, 85% of all Scheduled Monuments are considered as being in optimal or generally satisfactory condition, whereas 13% are considered as either being in a generally unsatisfactory condition or having extensive significant problems.

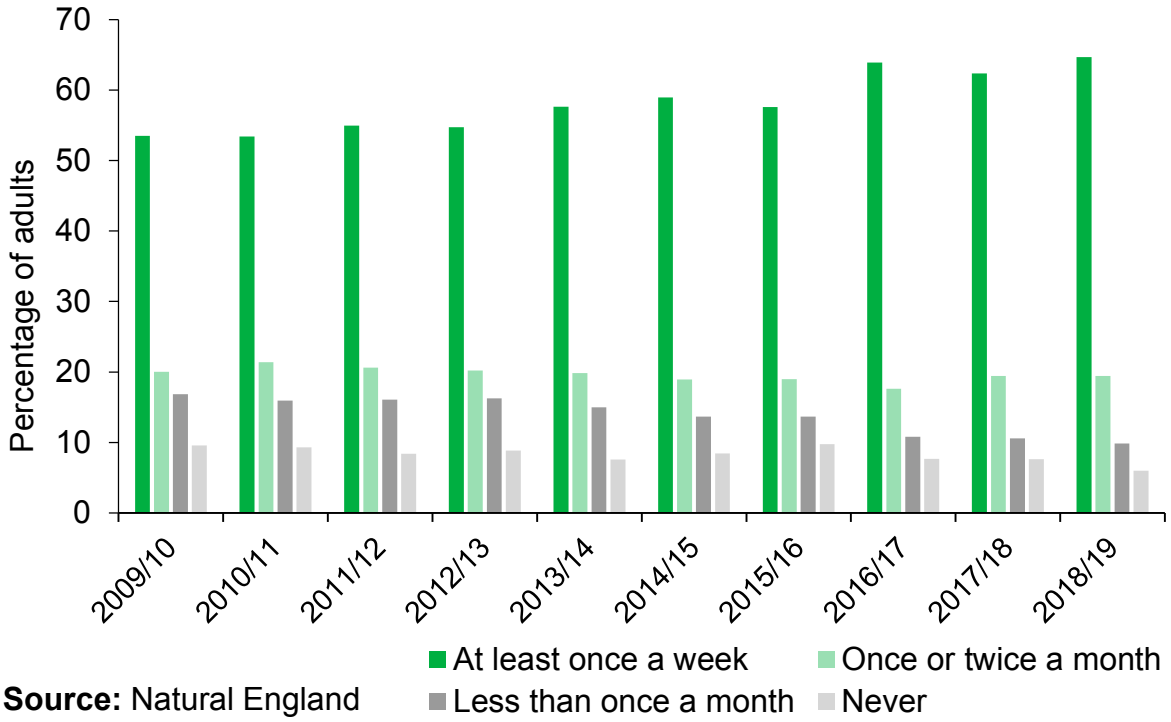
G3 Enhancement of green/blue infrastructure

Short description	This indicator will show changes in the quantity, quality, accessibility and functioning of green and blue infrastructure. Green and blue spaces in and around our built environment, including within Green Belts, are essential to health and happiness. This indicator will be developed from work on a new framework of standards for green and blue infrastructure. These standards aim to ensure that new developments include accessible green space and that any area with little or no green space can be improved for the benefit of the community. Green and blue infrastructure can also make an important contribution towards adaptation to climate change. The indicator will use information gathered through implementation of the framework of standards and by Natural England using a new people and nature survey that will collect data in 2019/20. This will build on the Monitor of Engagement with the Natural Environment (MENE) and incorporate feedback from stakeholders as part of a strategic review.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing beauty, heritage and engagement with the natural environment Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	Making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas. Creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected area network.
Position in the natural capital framework	Asset condition – land; freshwater; species and ecological communities
Related reporting commitments	Reporting under European Landscape Convention. May provide evidence in support of Climate Change Risk Assessment and the Adaption Sub-Committee's assessment of the National Adaptation Programme, under the Climate Change Act (2008).
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020. Work to develop standards, methods and monitoring is in progress.
Interim indicator (where applicable)	Not applicable

G4 Engagement with the natural environment

Short description	This indicator will track changes in people's engagement with the natural environment. Spending time in the natural environment improves our health and wellbeing. This indicator will measure time spent in natural spaces (woodland, parks, coasts and freshwaters, alongside other natural places), people's levels of care and concern, and other ways in which people enjoy and relate to the environment. It will be measured by Natural England using a new people and nature survey that will collect data in 2019/20. This will build on the Monitor of Engagement with the Natural Environment (MENE) and incorporate feedback from stakeholders as part of a strategic review.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing beauty, heritage and engagement with the natural environment
Relevant target(s) in the 25 Year Environment Plan	Making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and wellbeing.
Position in the natural capital framework	Service/benefit
Related reporting commitments	Relevant to Convention on Biological Diversity Aichi Target 1.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows frequency of visits to natural spaces. These data from the existing MENE survey are published annually. Further work is required to develop a more comprehensive indicator on engagement.
Interim indicator (where applicable)	**G4 (interim) Frequency of visits to the natural environment**

G4 (interim) Frequency of visits to the natural environment in England, 2009/10 to 2018/19



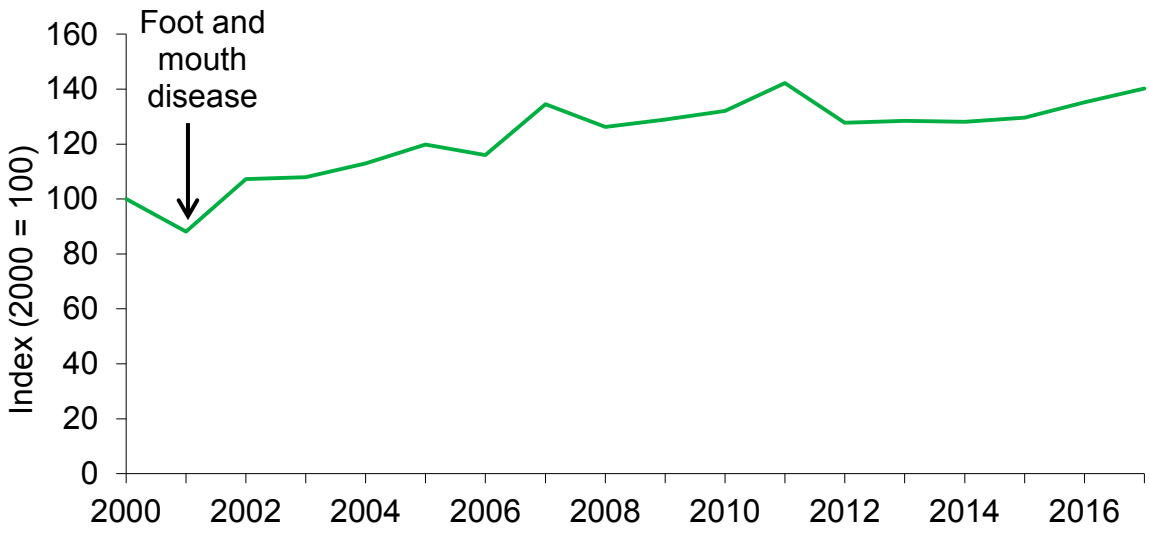
Source: Natural England

Trend description: There has been an increase in the proportion of adults visiting the natural environment at least once a week, from 54% in 2009/10 to 65% in 2018/19. In 2018/19, 16% of adults visited the natural environment every day or more than once per day.

G5 People engaged in social action for the environment

Short description	This indicator will track the extent of people's social action for the environment such as environmental volunteering, participation in conservation work and donations to environmental organisations. The indicator will assess how well people from all sectors of society are taking action to improve the environment. It will be measured by Natural England using a new people and nature survey that will collect data in 2019/20. This will build on the Monitor of Engagement with the Natural Environment (MENE) and incorporate feedback from stakeholders as part of a strategic review. Additional information will also be collected by voluntary bodies.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing beauty, heritage and engagement with the natural environment
Relevant target(s) in the 25 Year Environment Plan	Focusing on increasing action to improve the environment from all sectors of society.
Position in the natural capital framework	Service/benefit
Related reporting commitments	None
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows volunteer time spent on the natural environment in England. Some data on time spent volunteering are published annually as part of England's biodiversity indicators. Further work is planned to develop an indicator of a wider range of social action within the new MENE survey.
Interim indicator (where applicable)	**G5 (interim) People engaged in environmental volunteering.** The interim indicator covers information on time spent volunteering for a number of environmental organisations in England.

G5 (interim) Volunteer time spent on the natural environment in England, 2000 to 2017



Source: Bat Conservation Trust; Botanical Society of Britain & Ireland; British Trust for Ornithology; Canal & River Trust; National Parks England; Natural England; Plantlife; Royal Society for the Protection of Birds; The Conservation Volunteers; The Wildlife Trusts

Trend description: Between 2000 and 2017, the index of the amount of time contributed by environmental volunteers in England has fluctuated and overall, it has increased by 40%.

G6 Environmental attitudes and behaviours

Short description	This indicator will track changes in people's attitudes and behaviours relating to the environment, covering different sectors of the population. It will track attitudes such as willingness to change lifestyle and behaviours in key policy areas relating to sustainable use of natural resources, such as waste, water and energy. It will be measured by Natural England using a new people and nature survey that will collect data in 2019/20. This will build on the Monitor of Engagement with the Natural Environment (MENE) and incorporate feedback from stakeholders as part of a strategic review.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing beauty, heritage and engagement with the natural environment
Relevant target(s) in the 25 Year Environment Plan	Focusing on increasing action to improve the environment from all sectors of society.
Position in the natural capital framework	Service/benefit
Related reporting commitments	Relevant to Convention on Biological Diversity Aichi Target 1.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020. Some data on environmental attitudes and behaviours are provided by the existing MENE survey but further work is required to develop this indicator.
Interim indicator (where applicable)	Not applicable

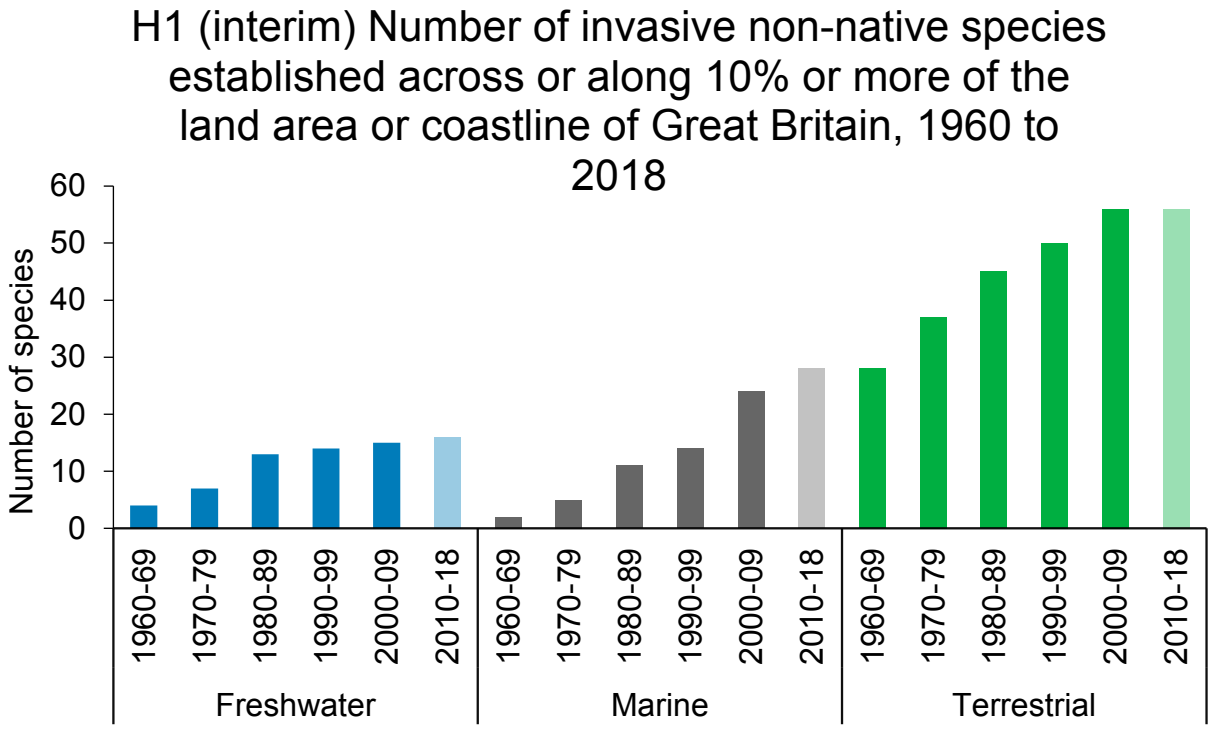
G7 Health and wellbeing benefits

Short description	This indicator will show changes in the health and wellbeing benefits that the natural environment provides for people. These will include benefits for mental and physical health that are gained from accessing nature, but also benefits such as improvements in air quality, climate regulation (e.g. urban cooling) and noise mitigation that people obtain whether they access nature or not. The indicator will track changes for people in disadvantaged groups and others who may benefit the most. Part of this indicator will be measured by Natural England using a new people and nature survey that will collect data in 2019/20. This will build on the Monitor of Engagement with the Natural Environment (MENE) and incorporate feedback from stakeholders as part of a strategic review. Further research on health and wellbeing benefits is in progress.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing beauty, heritage and engagement with the natural environment
Relevant target(s) in the 25 Year Environment Plan	Making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and wellbeing.
Position in the natural capital framework	Service/benefit
Related reporting commitments	May provide evidence in support of Climate Change Risk Assessment and the ASC's assessment of the National Adaptation Programme, under the Climate Change Act (2008).
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020. Some estimates of health benefits are provided in the ONS Natural Capital Accounts and the existing MENE survey but substantial further work is required to develop this indicator.
Interim indicator (where applicable)	Not applicable

H1 Abatement of the number of invasive non-native species entering and establishing against a baseline

Short description	Biosecurity measures to prevent the establishment of invasive non-native species are a key element of protecting against their significant economic, environmental and social impacts. This indicator will show how the number of invasive non-native species entering Great Britain has been abated (i.e. reduced) by comparing a predicted trend for establishment of invasive non-native species against actual establishment. Establishment of invasive species depends on factors such as trade and climate change. The difference to the trend in actual establishment then provides a measure of the success of biosecurity measures. The indicator will draw on data from the Non-Native Species Information Portal, overseen by the GB Non-Native Species Secretariat, which maintains an early detection, surveillance and monitoring mechanism that facilitates management, including rapid response. This indicator requires significant development, including deciding on which species to include and establishing a baseline for the predicted and established trend.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing biosecurity
Relevant target(s) in the 25 Year Environment Plan	Managing and reducing the impact of existing plant and animal diseases; lowering the risk of new ones and tackling invasive non-native species.
Position in the natural capital framework	Pressure
Related reporting commitments	Relevant to Convention on Biological Diversity Aichi Target 9. May provide evidence in support of Climate Change Risk Assessments under the Climate Change Act (2008).
Geographical scope	Great Britain
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows trends in the number of established non-native species in Great Britain. Further development is required to compare these data against a predicted trend.
Interim indicator (where applicable)	**H1 (interim) Number of established invasive non-native species in Great Britain.** The interim indicator shows the change in number of invasive non-native species established across or along 10% or more of the land area or coastline of Great Britain. There are 3,208 non-native species in Great Britain, 2,005 of which are

	classified as established (reproducing in the wild). This indicator contains 193 non-native species that are considered to be exerting a negative impact on native biodiversity (46 freshwater species, 39 marine species and 108 terrestrial species).



Source: Botanical Society of Britain & Ireland; British Trust for Ornithology; Centre for Ecology & Hydrology; Marine Biological Association; National Biodiversity Network

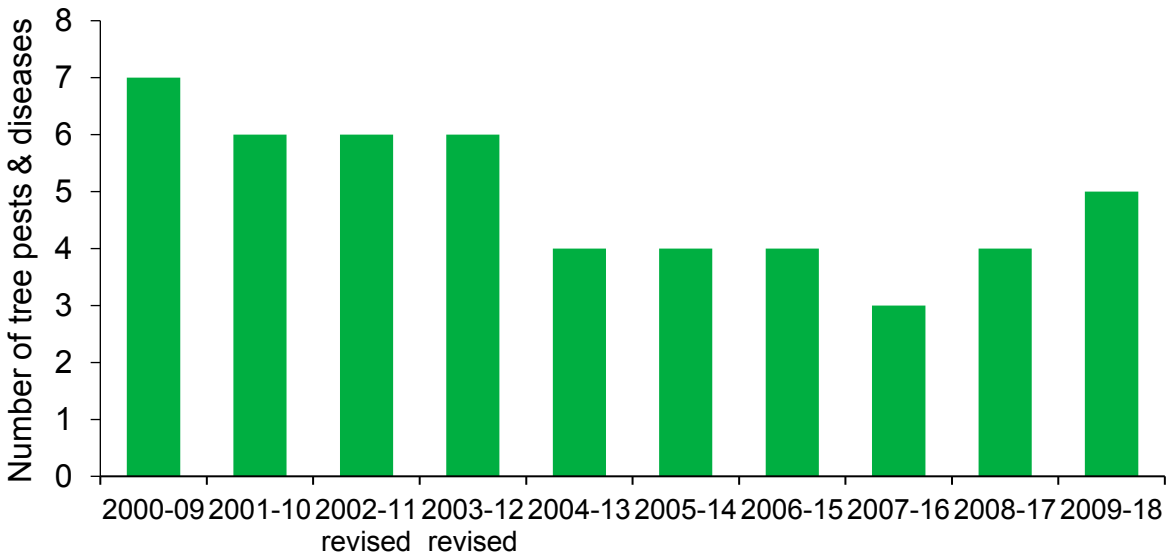
Note: The most recent time period covers a slightly shorter period than the other bars (from 2010 to 2018)

Trend description: Between the periods 1960-69 and 2010-18, the number of invasive non-native species established in or along 10% or more of Great Britain's land area or coastline has increased in the freshwater, terrestrial and marine (coastal) environments, with the greatest increases having been observed in the marine and terrestrial environments.

H2 Distribution of invasive non-native species and plant pests and diseases

Short description	This indicator will show changes in the distribution of non-native invasive species and plant pests that have already established in England. Preventing the spread of invasive non-native species limits their ability to disrupt ecosystems and cause economic damage. Plant pests and diseases cause significant negative impacts and it is often more difficult to prevent their entry and establishment, therefore limiting spread is critical in preventing negative impact on native species and ecosystems. This indicator will utilise distribution data for a reference subset of priority invasive species and plant pests and diseases as an indication of the success of biosecurity measures in controlling their spread.
Relevant goal(s) in the 25 Year Environment Plan	Enhancing biosecurity
Relevant target(s) in the 25 Year Environment Plan	Managing and reducing the impact of existing plant and animal diseases; lowering the risk of new ones and tackling invasive non-native species. Reaching the detailed goals set out in the Tree Health Resilience Strategy.
Position in the natural capital framework	Pressure
Related reporting commitments	Relevant to the Convention on Biological Diversity Aichi Target 9. May provide evidence in support of Climate Change Risk Assessments under the Climate Change Act (2008).
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows trends in the number of additional tree pests and diseases becoming established in England since the year 2000. These data are published annually in the Forestry Commission's Key Performance Indicators Report. Further development is required to identify species for inclusion and develop the indicator drawing on existing data.
Interim indicator (where applicable)	**H2 (interim) Number of additional tree pests and diseases becoming established.** This interim indicator enumerates those additional tree pests and diseases formally considered as becoming 'established' by the UK Plant Health Risk Group within a rolling 10-year period. Establishment is defined as 'perpetuation, for the foreseeable future, of a pest within an area after entry'. This is the definition produced by the Secretariat of the International Plant Protection Convention.

H2 (interim) Number of additional tree pests and diseases becoming established in England within a rolling 10-year period, 2000-09 to 2009-18



Source: Forestry Commission

Trend description: The number of additional tree pests and diseases becoming established in England within a rolling 10-year period fell from a peak of 7 in the 10-year period 2000-09 to a low of 3 in 2007-16. However, it has recently increased again to 5 in 2009-18 (the most recent 10-year period for which data are available). In all, 11 pests and diseases became established in England in the 19 years from 2000 to 2018 and of these, five tree pests and diseases became 'established' between 2009 and 2018, namely:
1. Alder Rust (*Melampsoridium hiratsukanum*), considered established in 2009;
2. Chalara dieback of Ash (*Hymenoscyphus fraxineus*), considered established in 2012;
3. Oriental chestnut gall wasp, considered established in 2016;
4. Sweet chestnut blight caused by the fungus *Cryphonectria parasitica*, considered established in 2017; and
5. The Elm zigzag sawfly *(Aproceros leucopoda*), considered established in 2018, following a rapid expansion across Europe from eastern Asia.

H3 Emissions of mercury and persistent organic pollutants to the environment

Short description	This indicator shows changes in emissions of mercury and persistent organic pollutants (POPs) to air, land and water from measured, calculated and modelled sources. POPs refers to pollutants listed under the Stockholm Convention. These are industrial, pesticide and unintentionally produced substances. POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the tissues of humans and wildlife, and have harmful impacts on human health or on the environment. Mercury is toxic and can cause damage to human health and accumulates in the environment and the food chain. For mercury, which is covered by the Minamata Convention, combustion sources are particularly significant, and information on emissions is provided annually by larger industrial sites. Other major sources of mercury to air will be gathered from different data sources.
Relevant goal(s) in the 25 Year Environment Plan	Managing exposure to chemicals
Relevant target(s) in the 25 Year Environment Plan	Reducing land-based emissions of mercury to air and water by 50% by 2030.
Position in the natural capital framework	Pressure
Related reporting commitments	Stockholm Convention, UN Economic Commission for Europe European Monitoring and Evaluation Programme and the EU Regulation on Pollutant Release and Transfer Registry.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020. Further development is required to bring data together from a number of different sources. Some information is already published: Persistent Organic Pollutants Multimedia Emissions Inventory, National Atmospheric Emissions Inventory and Pollutant Release and Transfer Registry.
Interim indicator (where applicable)	Not applicable

H4 Exposure and adverse effects of chemicals on wildlife in the environment

Short description	This indicator will track changes in the exposure and consider risk to wildlife from chemicals in freshwater, marine, coastal and terrestrial ecosystems. Data are currently available for some chemicals and some invertebrates, fish, shellfish, crustaceans, mammals, and birds of prey. Data for exposure of other species groups to chemicals may become available in the future. Further work is needed to develop indicators of the adverse effects of chemicals on wildlife populations which may be included in future.
Relevant goal(s) in the 25 Year Environment Plan	Managing exposure to chemicals Thriving plants and wildlife
Relevant target(s) in the 25 Year Environment Plan	None
Position in the natural capital framework	Pressure
Related reporting commitments	Oslo and Paris (OSPAR) Convention; EU Marine Strategy Framework Directive Descriptor 8, EU Water Framework Directive.
Geographical scope	England (UK for some marine components).
Readiness and links to data	This indicator is not available for reporting in 2020. Research work is in progress to develop this indicator. A framework for reporting is being tested covering exposure and risk, where feasible, from different types of chemicals to wildlife on land and in water. Further development is required to incorporate other related research. Data are available for some species (fish, shellfish, crustaceans, mammals, birds of prey). Some data relevant to this indicator are published: OSPAR; Predatory Bird Monitoring Scheme – contaminant exposure.
Interim indicator (where applicable)	Not applicable

H5 Exposure to transport noise

Short description	This indicator will track changes in the exposure of people to noise from transportation sources. It does not include neighbour and neighbourhood noise. The indicator will show the estimated number of people exposed to noise levels (in 5 decibel bands) from the most significant road, rail and air sources. Health costs (and hence burden to the economy) of noise can be estimated from health outcomes associated with noise exposure (such as annoyance, sleep disturbance, and cardiovascular effects). The data used for this indicator are currently derived through strategic noise mapping undertaken at 5-year intervals.
Relevant goal(s) in the 25 Year Environment Plan	Enhanced beauty, heritage and engagement with the natural environment
Relevant target (s) in the 25 Year Environment Plan	None
Position in the natural capital framework	Pressure
Related reporting commitments	Environmental Noise Directive (2002/49/EC) as transposed by the Environmental Noise (England) Regulations (as amended) 2006.
Geographical scope	England, potential to disaggregate the data regionally.
Readiness and links to data	This indicator is not available for reporting in 2020 as further work is required to develop the indicator. Data for noise exposure are published.
Interim indicator (where applicable)	Not applicable

J1 Carbon footprint and consumer buying choices

Short description	This indicator tracks changes in consumer buying choices as they impact on carbon footprint by looking at the national consumption-based carbon footprint. The indicator will show how consumer preferences and behaviour are impacting on the overall national carbon footprint.
Relevant goal(s) in the 25 Year Environment Plan	Minimising waste Mitigating and adapting to climate change
Relevant target(s) in the 25 Year Environment Plan	Working towards our ambition of zero avoidable waste by 2050. Making sure that all policies, programmes and investment decisions take into account the possible extent of climate change this century.
Position in the natural capital framework	Pressure
Related reporting commitments	None
Geographical scope	England.
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here. Data at an England level is published as Material footprint and resource efficiency in the UK and at UK level as UK's carbon footprint. Further data may be available in the future on consumer buying choices based on the resources and waste implications of those choices. https://www.gov.uk/government/statistics/uks-carbon-footprint
Interim indicator (where applicable)	**J1 (interim) Carbon Footprint on a Consumption Basis, England, 2001 to 2017 inclusive, Million Tonnes CO_2 Equivalent ($MtCO_2e$).**

J1 (interim) Consumption-side greenhouse gas emissions in England, 2001 to 2017

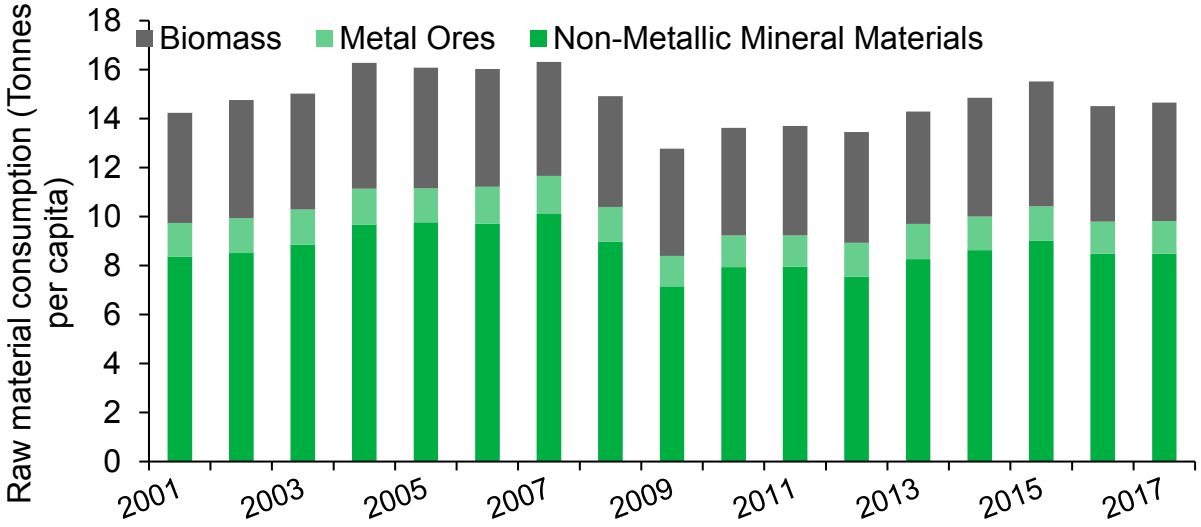
Source: Defra

Trend description: England's carbon footprint was estimated to be 652.3 million tonnes CO_2 equivalent ($MtCO_2e$) in 2017, a 15.3% reduction on levels in 2001 (770.5 $MtCO_2e$). Greenhouse gases (GHGs) emitted directly by households (making up 18.8% of the footprint in 2017) were 11.1% lower in 2017 than in 2001 as a result of reductions in emissions associated with household-related heating. Total consumption-based emissions have been on a downward trajectory since 2007: the greatest contribution to this trend has come from the goods and services produced in England and consumed here; and emissions embedded in imports have also reduced substantially (26.6% and 19.5% respectively from a 2007 peak). As a proportion of total emissions in 2017, GHGs emitted overseas in the production of goods and services consumed in England made up 46.3% of the total footprint.

J2 Raw material consumption

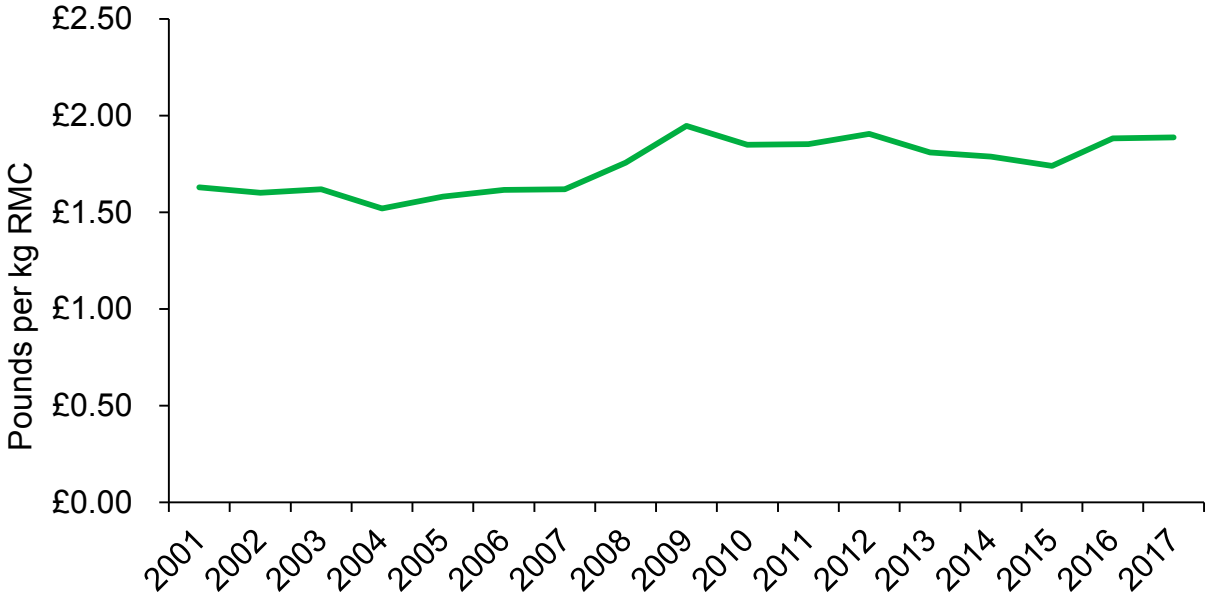
Short description	This indicator shows trends in the amount of raw material consumption per capita and the amount of GVA per unit of raw material consumption. These indicators give a proxy for the scale of our environmental impact, while helping identify how efficiently natural resources are being used and the extent to which wealth creation is decoupled from consumption of materials.
Relevant goal(s) in the 25 Year Environment Plan	Using resources from nature more sustainably and efficiently Mitigating and adapting to climate change
Relevant target(s) in the 25 Year Environment Plan	Maximising the value and benefits we get from our resources, doubling resource productivity by 2050.
Position in the natural capital framework	Pressure
Related reporting commitments	Links to the UN Sustainable Development Goals 8 and 12.
Geographical scope	UK
Readiness and links to data	New data on raw material consumption is published in material footprint. (Note: Previously data on raw material consumption have been published by the Office for National Statistics (ONS)). Gross Value Added data is published by the Office for National Statistics (2019) Nominal and real regional gross value added (balance) by industry
Interim indicator (where applicable)	Not applicable

J2a Raw material consumption per capita in England, 2001 to 2017



Source: Defra

J2b Gross Value Added per kg of Raw Material Consumption 2001 to 2017



Source: Defra / Office for National Statisitcs

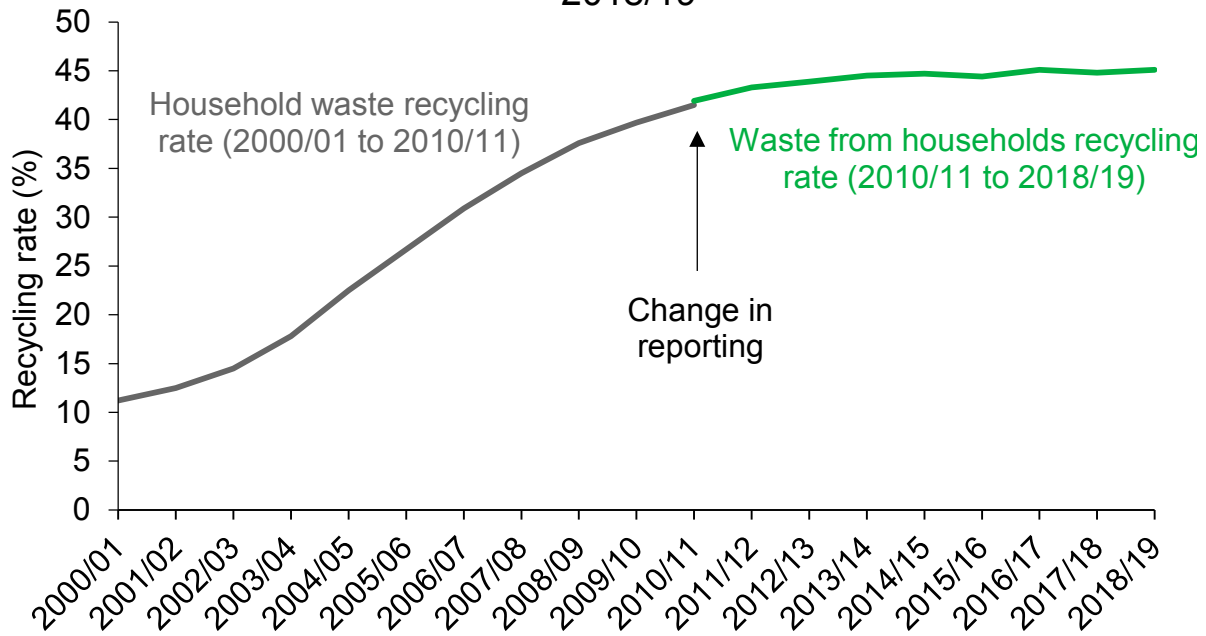
Trend description: The average material footprint per capita in England (excluding fossil fuels) increased by 3.0% between 2001 and 2017. It rose steadily between 2001 and 2007, before declining sharply during the recession. It rose again to 2015 and fell back in 2016 and 2017, to 14.7 tonnes per capita. Within the overall total there have been increases in per capita consumption of both biomass and non-metallic mineral materials between 2001 and 2017, whilst for metal ores there has been a slight decrease.

In 2017, England generated 15.9% more economic value than in 2001 (measured by Gross Value Added (GVA) per unit of raw material consumed (RMC)) and also described as resource productivity. Resource productivity rose from £1.63 of GVA per kg of RMC in 2001 to £1.89 in 2017. Resource productivity peaked at £1.95 in 2009, as a result of a sharp drop in raw material consumption relative to economic activity during the recession. It has since declined against this peak, but remains above pre-recession levels.

J3 Municipal waste recycling rates

Short description	This indicator shows changes in municipal waste recycling rates in England. The municipal waste recycling rate is the fraction of household waste and waste similar in nature and composition to household waste, which is recycled. The indicator reflects levels of everyday waste that is recycled and not sent for final disposal. Development of the waste tracking tool and further integration with data collected by local authorities will close some of the data gaps and will enable collection of more comprehensive data.
Relevant goal(s) in the 25 Year Environment Plan	Minimising waste
Relevant target(s) in the 25 Year Environment Plan	Working towards our ambition of zero avoidable waste by 2050.
Position in the natural capital framework	Pressure
Related reporting commitments	EU Waste Framework Directive.
Geographical scope	England; some data are available for local authorities.
Readiness and links to data	Although this indicator is not available for reporting in 2020 in a finalised form, an interim indicator is presented here that shows trends in household waste and waste from households recycling rates. These data are already published annually but further development is required to include waste that is similar in nature and composition to household waste.
Interim indicator (where applicable)	**J3 (interim) Household waste and waste from households recycling rates.**

J3 (interim) Household waste and waste from households recycling rates in England, 2000/01 to 2018/19

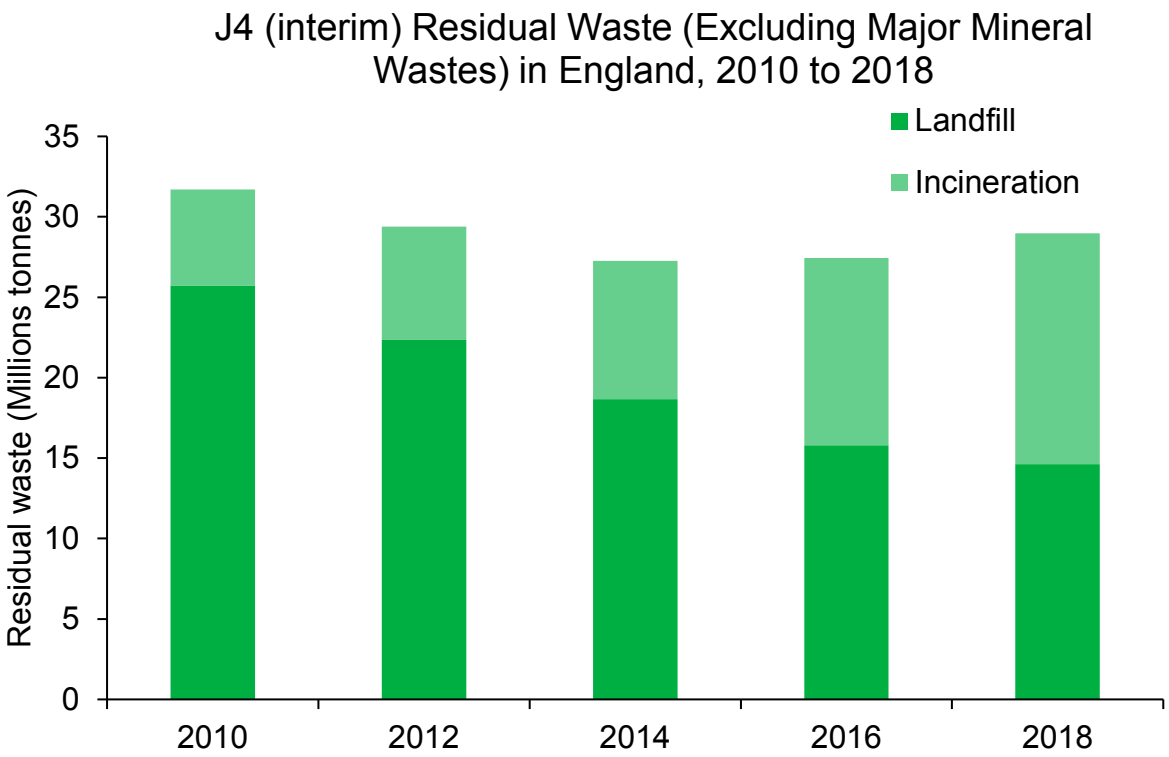


Source: Defra

Trend description: In 2018/19, the recycling rate for 'Waste from Households' was 45.1%, up 3.2 percentage points on the equivalent figure for 2010/11 (when the measure was first reported). While the measure of 'household waste' recycling is based on a broader definition of waste and not directly comparable to 'Waste from Households', there has been a 33.9 percentage point increase in the waste recycling rate across the 2 measures between 2000/01 and 2018/19.

J4 Residual waste arising by type and sector

Short description	This indicator shows how much waste is incinerated and landfilled in England rather than recycled, reused or treated further up the waste hierarchy. Data are captured through returns made by facilities that are permitted, local authority data submitted and also via non-site based regulation activity. There are still gaps in the data and these will need to be addressed in order to provide reporting by type and sector.
Relevant goal(s) in the 25 Year Environment Plan	Minimising waste
Relevant target(s) in the 25 Year Environment Plan	Working towards our ambition of zero avoidable waste by 2050. Working to a target of eliminating avoidable plastic waste by end of 2042. Meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones.
Position in the natural capital framework	Pressure
Related reporting commitments	EU Waste Framework Directive.
Geographical scope	England
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows trends in residual waste from household, and commercial and industrial sources. Some data are available via the Waste data interrogator for reporting in 2020, but further work is required to split by sector and type of waste.
Interim indicator (where applicable)	**J4 (interim) Residual Waste from Household and Commercial and Industrial (C&I) Sources, England, 2010 to 2018.**



Source: Environment Agency

Trend description: Residual waste here refers to waste sent to landfill or incineration in England. In 2018, the total quantity of waste (excluding major mineral wastes) [6] landfilled or incinerated in England was 29.0 million tonnes, an 8.6% reduction against levels in 2010 (31.7 million tonnes). This reduction was due to less waste being landfilled (falling by almost half over the period), whereas waste sent to incineration more than doubled in the same period.

[6] Major mineral wastes are, according to Eurostat and the European Waste Classification for Statistical Purposes (EWC-Stat, version 4), mineral construction and demolition waste (EWC-Stat 12.1), other mineral waste (EWC-Stat 12.2, 12.3 and 12.5), soils (EWC-Stat 12.6) and dredging spoils (EWC-Stat 12.7).

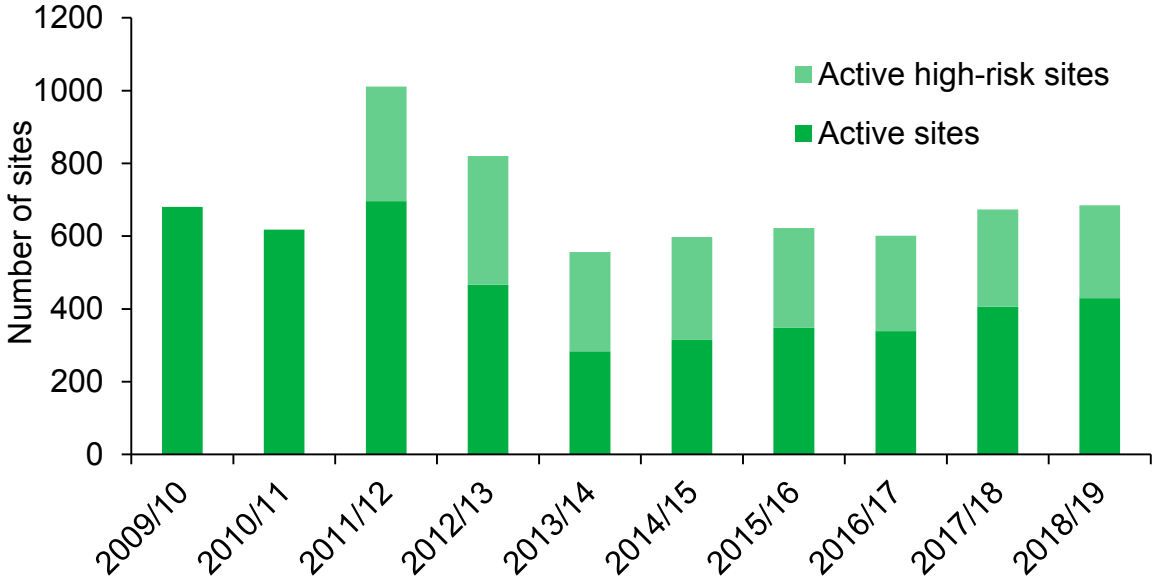
J5 Prevent harmful chemicals from being recycled

Short description	This indicator will track the amount of banned or restricted chemicals in waste which is being destroyed. The removal and proper destruction of such chemicals is necessary to prevent them contaminating recycled products or being released into the environment. Initially the indicator will use data on the amount of persistent organic pollutants (POPs) being sent for destruction. This is in line with the goal to substantially increase the amount of POPs material being destroyed or irreversibly transformed by 2030. Similar data on elimination of the use of polychlorinated biphenyls (PCBs) will be included once those data become available. Where possible, these chemicals should be removed prior to disposal, minimising the amount of waste being sent for destruction. Data may soon become available for some of these waste types, enabling assessment of improvements in the quantity and quality of waste material available for recycling.
Relevant goal(s) in the 25 Year Environment Plan	Managing exposure to chemicals Minimising waste
Relevant target(s) in the 25 Year Environment Plan	Fulfilling our commitments under the Stockholm Convention as outlined in the UK's most recent National Implementation Plan. Substantially increasing the amount POPs material being destroyed or irreversibly transformed by 2030, to make sure there are negligible emissions to the environment. Seeking in particular to eliminate the use of PCBs by 2025, in line with our commitments under the Stockholm Convention. Working towards our ambition of zero avoidable waste by 2050
Position in the natural capital framework	Pressure
Related reporting commitments	Persistent Organic Pollutants Regulation (Article 12).
Geographical scope	UK and is available at regional level, and by local and waste planning authority.
Readiness and links to data	This indicator is not available for reporting in 2020; some data are already via the hazardous waste interrogator. Further work is required to develop the indicator, initially for POPs and subsequently for PCBs.
Interim indicator (where applicable)	Not applicable

J6 Waste crime

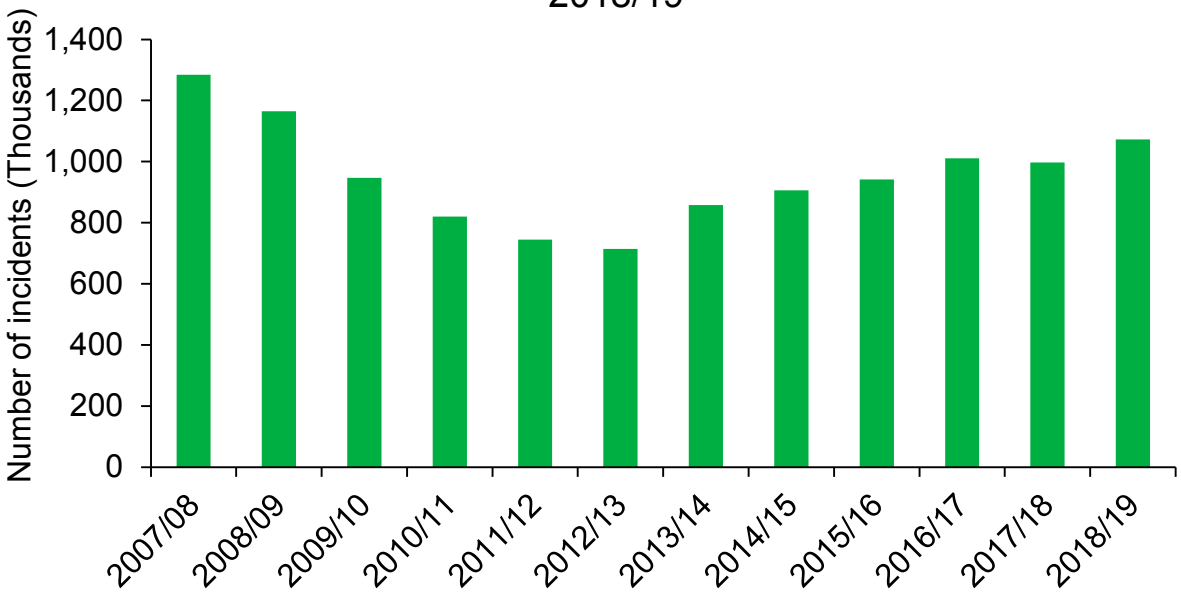
Short description	This indicator tracks changes in the main types and scale of waste crime. Waste crime is the illegal management of all forms of waste. If not handled properly, waste can cause serious pollution of the environment – air, land and water, which can be harmful to health. It further reduces the availability of resources from waste because waste isn't captured through legitimate routes. Current data reported includes illegal waste sites and fly-tipping. These current data can be used to establish some aspects of waste types, level of criminal activity and geographic distribution. Options for further development will be considered, including the impacts and behavioural aspects of waste crime, the amount and types of potential resources lost through waste crime, and to reflect the need for targeting and effective enforcement to deliver reductions in the level of criminal activities.
Relevant goal(s) in the 25 Year Environment Plan	Minimising waste
Relevant target(s) in the 25 Year Environment Plan	Seeking to eliminate waste crime and illegal waste sites over the lifetime of this Plan, prioritising those of highest risk.
Position in the natural capital framework	Pressure
Related reporting commitments	None
Geographical scope	England and at individual site or facility level.
Readiness and links to data	This indicator is not available for reporting in 2020 in a finalised form. An interim indicator is presented here that shows illegal waste sites and fly tipping incidents. This indicator is not available for full reporting in 2020: some data on fly tipping and waste crime are already published but further work is required to develop the indicator.
Interim indicator (where applicable)	**J6 (interim) Illegal Waste Sites of which High Risk Illegal Waste Sites, England, 2009/10 to 2018/19 Inclusive, Number of Sites. Fly tipping incidents, England, 2007/08 to 2018/19.**.

J6a (interim) Illegal waste sites in England, 2009/10 to 2018/19



Source: Environment Agency

J6b (interim) Fly tipping incidents in England, 2007/08 to 2018/19



Source: Defra

Trend description: The number of illegal waste sites fell to 556 active illegal sites in England in 2013/14. Since then, the number has increased gradually, reaching 685 in 2018/19. Within this total, the number of high-risk active illegal waste sites fell by 27.8% from a peak of 353 sites in 2012/13 to 255 sites in 2018/19. The number of incidents of fly-tipping in England fell from 1.28 million in 2007/08 to 715 thousand incidents in 2012/13. Despite initial reductions, between 2012/13 and 2018/19, the number of incidents increased to over 1 million (1.07 million).

K1 Overseas environmental impacts of UK consumption of key commodities

Short description	This indicator will track the impact on the environment overseas resulting from our domestic consumption, linked to the sustainability of the products we import. We are exploring methods and data for this indicator that could include a measure of the environmental impact of some of the commodities we import (for example, on deforestation and/or water stress).
Relevant goal(s) in the 25 Year Environment Plan	There are no specific goals in the 25 Year Environment Plan for this indicator, however the Plan commits us to leaving a lighter footprint on the global environment by enhancing sustainability and supporting zero deforestation supply chains.
Relevant target(s) in the 25 Year Environment Plan	None
Position in the natural capital framework	Service/benefit
Related reporting commitments	The indicator is relevant to the Convention on Biological Diversity Aichi Target 4 and the Sustainable Development Goals 12, 14 and 15.
Geographical scope	UK
Readiness and links to data	This indicator is not available for reporting in 2020. We are undertaking research to support development of this indicator, including review of existing methodologies of global impacts indicators, tracing impact through supply chains and appropriate metrics. In addition, we are undertaking a comprehensive review of published platforms and tools, including their readiness and context to assess how these may be relevant to understanding the impacts of UK consumption on the environment overseas.
Interim indicator (where applicable)	Not applicable

K2 Developing countries better able to protect and improve the environment with UK support

Short description	The poorest people and countries in the world are often the most vulnerable and likely to be hardest hit by the degradation of natural environments. Climate change and the deterioration of natural environments are prime drivers of poverty, food insecurity and instability, and can trigger conflict and migration. This indicator will report outcomes of UK investment programmes (such as International Climate Finance, the Darwin Initiative and the Illegal Wildlife Challenge Fund) that support developing countries to protect and improve the environment, address illegal wildlife trade, mitigate and adapt to climate change and alleviate poverty.
Relevant goal(s) in the 25 Year Environment Plan	There are no specific goals in the 25 Year Environment Plan for this indicator; however, the Plan commits us to helping developing nations protect and improve the environment.
Relevant target(s) in the 25 Year Environment Plan	None
Position in the natural capital framework	Service/benefit
Related reporting commitments:	None
Geographical scope	International
Readiness and links to data	This indicator is not available for reporting in 2020. Further development is needed to identify how to assess outcomes of UK overseas investment building on existing evaluation schemes for International Climate Finance, The Darwin Initiative, and the Illegal Wildlife Trade Challenge Fund.
Interim indicator (where applicable)	Not applicable

K3 Status of endemic and globally threatened species in the UK Overseas Territories

Short description	UK Overseas Territories are home to rich, globally important biodiversity, with many species found nowhere else in the world. This indicator will track change in the status of key endemic and globally threatened species found in the Overseas Territories.
Relevant goal(s) in the 25 Year Environment Plan	There are no specific goals in the 25 Year Environment Plan for this indicator, but the Plan commits us to taking action to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human-induced extinction or loss of known threatened species, in the Overseas Territories.
Relevant target(s) in the 25 Year Environment Plan	None
Position in the natural capital framework	Asset condition – species and ecological communities
Related reporting commitments	The indicator is relevant to the Convention on Biological Diversity Aichi Target 12 and Sustainable Development Goals 14 and 15.
Geographical scope	UK Overseas Territories
Readiness and links to data	This indicator is not available for reporting in 2020. Significant further work required to develop the indicator.
Interim indicator (where applicable)	Not applicable

K4 Extent and condition of terrestrial and marine protected areas in the UK Overseas Territories

Short description	The UK Overseas Territories are home to a variety of spectacular and often unique marine and terrestrial ecosystems. This indicator will show changes in the area of protected areas in the Overseas Territories, and aspects of their condition that can be assessed cost-effectively.
Relevant goal(s) in the 25 Year Environment Plan	There are no specific goals in the 25 Year Environment Plan for this indicator, but the Plan commits us to develop new techniques to manage protected areas in the Overseas Territories, and work with the Overseas Territories governments to implement the Blue Belt programme.
Relevant target(s) in the 25 Year Environment Plan	None
Position in the natural capital framework	Asset condition – seas; woods; mountain, moor and heath; coasts
Related reporting commitments	This indicator is relevant to the Convention on Biological Diversity Aichi Target 11 and Sustainable Development Goals 14 and 15.
Geographical scope	UK Overseas Territories
Readiness and links to data	This indicator is not available for reporting in 2020. Research has been commissioned to support development of this indicator, including exploring the feasibility of Earth Observation data to assess the condition of protected areas.
Interim indicator (where applicable)	Not applicable

Annex 1: Official statistics

The term official statistics comprises National Statistics, official statistics and experimental statistics.

All official statistics are produced by crown bodies, those acting on behalf of crown bodies, or those specified in statutory orders, as defined in the Statistics and Registration Service Act 2007.

National Statistics have been assessed by the Office for Statistics Regulation, the regulatory arm of the UK Statistics Authority, as fully compliant with the Code of Practice for Statistics. Accredited National Statistics are identified by the following quality mark:

Official statistics are produced in accordance with the Code of Practice for Statistics and its key principles of: trustworthiness, quality and value.

Experimental statistics are newly developed or innovative statistics published so that users and stakeholders can be involved in the assessment of their suitability and quality at an early stage.

Measuring environmental change: Outcome Indicator Framework for the 25 Year Environment Plan

Statement of Voluntary Application of the Code of Practice for Statistics

Although this report is not in itself an official statistic or National Statistic, compendium publication, where possible we follow the UK's Code of Practice for Statistics in its production and in the compilation of the indicator framework within it

The code is built around 3 main concepts, or pillars:

Trustworthiness – *The focus of this principle is about building and maintaining confidence in the people and the organisations that publish information including that derived from National and official statistics.*

Quality – *The focus of this principle is on ensuring that we use data and methods that produce assured statistics.*

Value – *The focus of this principle is on publishing statistics that support society's need for information, addressing the questions that external users wish to have answered.*

The following explains how these pillars have been applied in a proportionate way to enable us to demonstrate voluntary compliance with many parts of the code, in line with the Guide for Voluntary Application of the Code.

Trustworthiness

Measuring environmental change: Outcome Indicator Framework for the 25 Year Environment Plan provides references on the sources of all of the quoted information. For the most part, the report draws on formally published National or official statistics – either produced by Defra or by the department's Arms' Length Bodies, often with input from external environmental partners.

This release is not covered by the normal orderly release process required for all new National and official statistics – primarily because it draws upon already published information. This different release process is also appropriate in that this is in essence an operational performance report, used within the Defra Group to identify the outcomes of delivery to date and to prioritise areas for further action. Hence the draft report is circulated internally in advance of publication.

Quality

Where the statistics used in this report are National or official statistics, they have an existing quality assessment process. Details on the methodologies used in constructing the underlying statistics are set out in the original publications, which are referenced.

Where there are new indicators in development, these are clearly flagged. Where possible we will use the processes for 'experimental' statistics set out in the Code of Practice to govern their development and any future confirmation of these indicators. We continue to actively develop indicators in conjunction with stakeholders and for those evolving experimentally we are developing the method for testing them.

Value

The indicators presented within this report were identified by a cross-disciplinary and cross-organisational team and views were sought from a range of external stakeholders and acted upon.

The overall annual report meets a government commitment (to produce an annual assessment of the progress in meeting the objectives set out in the 25 Year Environment Plan). A process has been put in place to ensure that the suite of indicators continues to be informed by and responsive to views from outside government as well as tracking commitments made inside government.