

Benefits across the UK

NERC science delivers benefits in every region of the UK, driving our journey to net zero while spreading prosperity, building resilience and protecting the environment

£500 million

Boost to Northern Ireland economy through sustainable geotourism

90%

Saving in flood defence costs at Belford, North East England

£millions

Sustainable growth of Scottish salmon industry

Contributing to the UN Sustainable Development Goals

8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



IMPACT



Why it matters

Local sustainable, clean and inclusive economic growth, prosperity and low-carbon green recovery are key priorities for the Government and devolved nations.

NERC's investments support these aims, delivering impact for all parts of the UK. In addition, our investments develop clusters of regional capacity across the country, contributing to local economic growth and job creation.

In this way we spread prosperity, levelling up the UK economy and unlocking environmentally sustainable investment, including in key sectors such as energy and space.

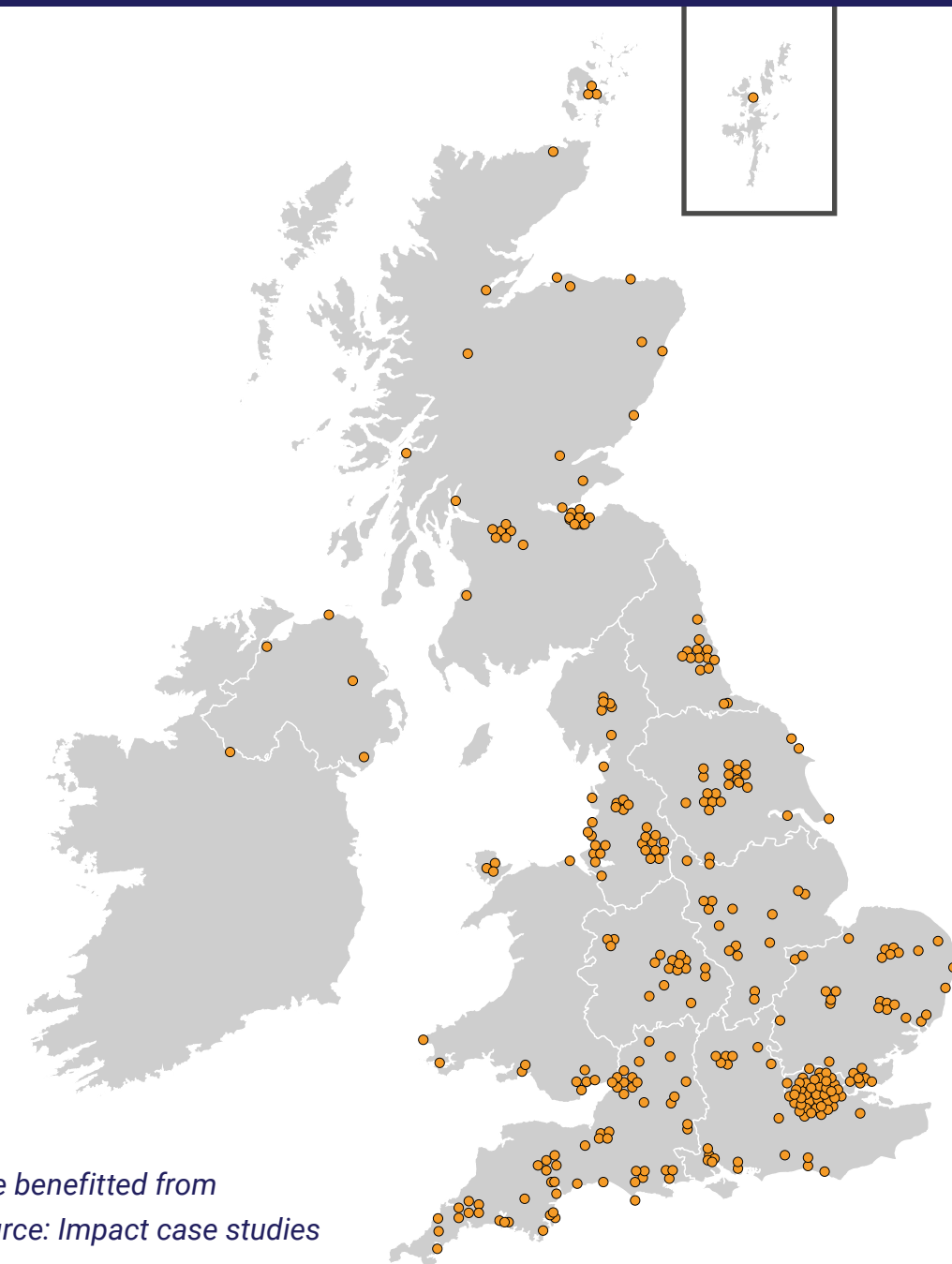


What we did

NERC invests in outstanding infrastructure, people, research and innovation across the UK. Around 70% of our funding in the last decade was invested outside the Greater South East.

Our scientists work with other experts, such as engineers, economists, and innovators to bring environmental solutions to where they are needed. This includes working with industries such as aquaculture, renewable energy, and utilities, benefitting local economies and communities.

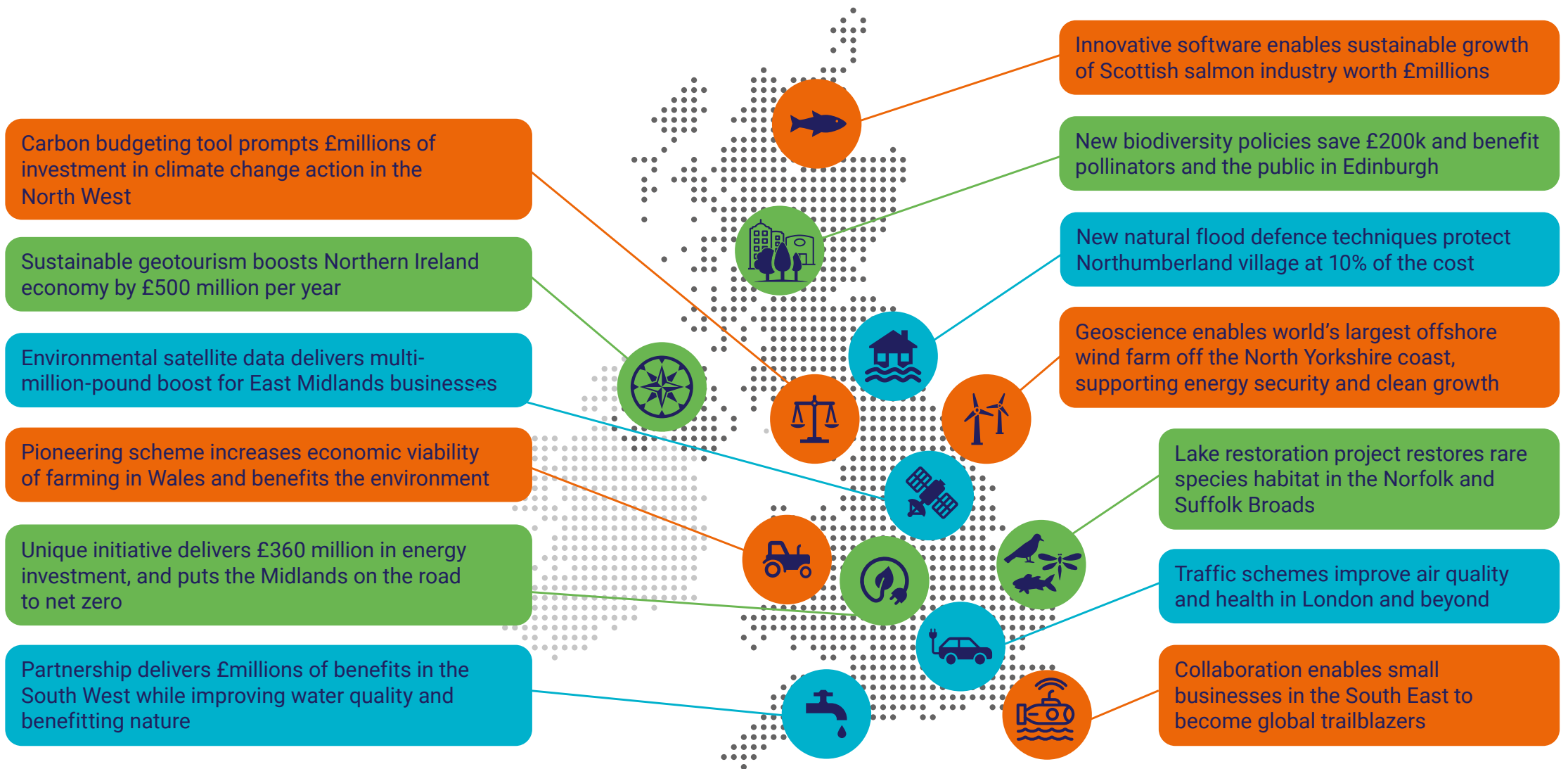
Through our [Research Centres](#) and partners we deliver national capabilities for the UK in critical and sensitive areas of environmental science, such as geological records and marine resources.



Locations that have benefitted from NERC science. Source: Impact case studies

NERC delivers benefits across the UK

NERC science delivers benefits in every region of the UK, driving our journey to net zero while spreading prosperity, building resilience and protecting the environment.



Click the icon or headline for further information

UK-wide impacts

Our broader, nationally-focused research benefits local economies and improves quality of life too. For example:

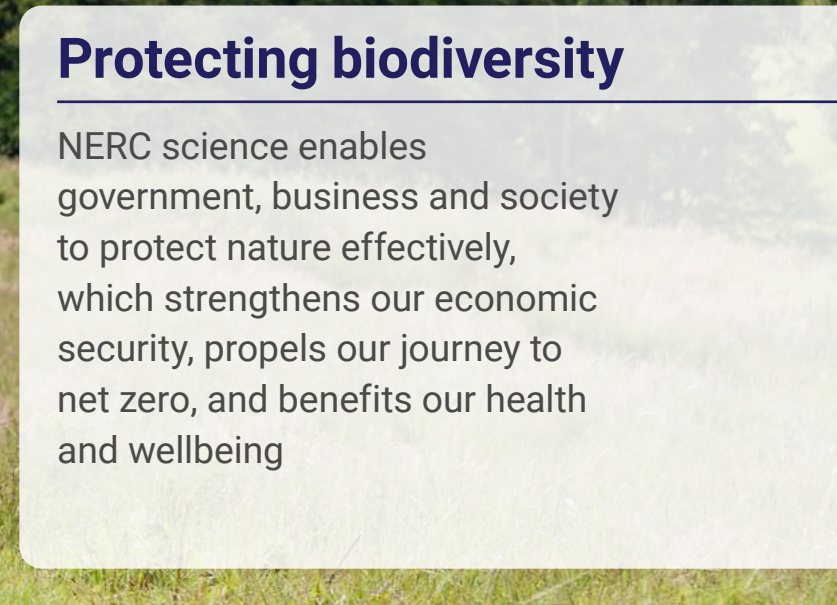
Climate solutions

NERC science drives the UK's journey to net zero by providing the evidence needed for unleashing clean growth opportunities and adapting to climate extremes



Protecting biodiversity

NERC science enables government, business and society to protect nature effectively, which strengthens our economic security, propels our journey to net zero, and benefits our health and wellbeing



Cleaning up our air

NERC science equips government, business and wider society to take evidence-based action to tackle air pollution. The benefits – lives saved, better health, lower costs, a cleaner environment – are worth an estimated £1.2 billion per year



Harnessing offshore wind energy

NERC science has enabled the UK to lead the world in offshore wind energy and enjoy its benefits – clean growth, job creation and better energy security – while protecting key marine species and habitats



Impact: Scotland



**Innovative software
enables sustainable growth
of Scottish salmon industry
worth £millions**



The £1 billion Scottish salmon industry is benefitting from millions of pounds of sustainable growth thanks to software that protects the environment from harmful salmon farm waste.

NewDEPOMOD, a third-generation waste-modelling tool developed from the original NERC-funded version, is the only software approved by the Scottish Environment Protection Agency (SEPA). By predicting sea-floor waste levels, NewDEPOMOD enables new or expanding fish farms to optimise production capacity within limits that meet SEPA environmental quality standards.

For example, since 2017 NewDEPOMOD has enabled MOWI Group, one of the largest salmon companies in Scotland, to expand production by 5,600 tonnes every two years, increasing annual profit by more than £3 million.

Impact: Scotland



New biodiversity policies save £200k and benefit pollinators and the public in Edinburgh



Adoption of simple, cost-effective biodiversity-boosting policies by City of Edinburgh Council has saved the council an estimated £200,000, increased the diversity and abundance of pollinators in urban areas, and created more urban meadow spaces for the public to enjoy.

The policies are based on first-of-its-kind research comparing pollinators in urban, agricultural and nature reserve habitats funded by NERC, BBSRC and Defra. The changes include less frequent grass cutting to allow wild flowers to grow and the creation of more than 70 wildflower meadows in Edinburgh parkland.

The project findings are influencing urban biodiversity strategies both nationally, and internationally including France, the Netherlands and Brazil.

Impact: Wales



Pioneering scheme increases economic viability of farming in Wales and benefits the environment



The Welsh Government's adoption of an innovative £250 million per year land management scheme known as Glastir has helped farms become more economically viable and improved water quality, reduced flood risk, enhanced biodiversity, protected landscapes and improved access to the countryside.

Early surveys indicate that the Glastir Efficiency Grant boosted the economic viability of more than three-quarters of recipient farms, and the wider scheme has helped over half involved to take action to combat climate change.

Collaborative research by NERC/BBSRC backed scientists at Queen Mary University and the NERC-funded UK Centre for Ecology and Hydrology (UKCEH) prompted the pioneering initiative in 2012, enabling Wales to become the first European country to target government subsidies by location to deliver the largest environmental and economic benefits.

Impact: Northern Ireland



**Sustainable geotourism
boosts Northern Ireland
economy by £500 million
per year**



Three world-famous geological features in Northern Ireland are delivering multi-million pound economic, environmental and societal benefits thanks to input from NERC-funded geoscientists.

The Giant's Causeway and Causeway Coast World Heritage Site, the Cuilcagh Lakelands UNESCO Global Geopark, and the Mourne Gullion Strangford Aspiring UNESCO Global Geopark attract more than 2 million visitors a year from over 160 countries, generating an estimated £500 million a year and numerous jobs in the region. Both sites also deliver educational and cultural benefits, and help the UK meet the 2030 UN Sustainable Development Goals.

The Geological Survey of Northern Ireland (GSNI), which is staffed by NERC British Geological Survey (BGS) scientists, has played a key role in developing and promoting sustainable geology-based tourism at the three UNESCO-designated sites over the past two decades.

Impact: North West



Carbon budgeting tool prompts £millions of investment in climate change action in the North West



Regions across the UK are setting and delivering more ambitious climate change strategies thanks to carbon budgeting tools which are helping governments and businesses to play their part in global climate goals.

Greater Manchester Combined Authority, for example, slashed its previous goal of 80% carbon reduction by 2050 in favour of zero emissions by 2038 as a result. This changed thinking prompted major public and commercial investment in the region, including £65 million in new climate change policies and a £63.5 million commitment from Electricity North West to carbon reduction.

The carbon budgeting tools, based on EPSRC, NERC and ESRC-funded expertise at the Tyndall Centre for Climate Change, help translate global carbon budgets to local scales, and help governments and businesses to develop policies in line with the 2015 Paris Climate Accords.

Impact: North East



New natural flood defence techniques protect Northumberland village at 10% of the cost



A Northumberland village that flooded seven times in eight years has been flood-free since 2010 thanks to the introduction of innovative natural flood management techniques.

The pioneering 'soft-engineered' scheme at Belford, based on NERC, EPSRC and Environment Agency funded research, used ponds and 'leaky' dams to divert, store and slow flood water. The project cost 90% less than the alternative: a £2.1 million dam.

The scheme's success paved the way for investment of more than £15 million in natural flood defence initiatives across the country. These projects also offer additional benefits in terms of greater biodiversity, improved soil and water quality and increased carbon capture.

Impact: Yorkshire and the Humber



Geoscience enables world's largest offshore wind farm off the North Yorkshire coast, supporting energy security and clean growth



Unique knowledge and understanding of seabed geology and hazards developed over decades by NERC's British Geological Survey (BGS) has played a pivotal role in the rapid growth of the world's biggest offshore wind energy industry.

BGS is working with SSE Renewables and Equinor on the flagship Dogger Bank Wind Farm off the Yorkshire coast, for example, which will be the world's biggest offshore wind farm.

Estimated to meet 5% of UK electricity needs, this will be another key component in a sector that has expanded at incredible speed over the last decade – creating 11,000 jobs in coastal communities across the country, generating millions of pounds in tax revenues and helping the UK take significant strides to meeting its commitment to cut its carbon emissions to net zero by 2050.

Impact: West and East Midlands



Unique initiative delivers £360 million in energy investment, and puts the Midlands on the road to net zero



As the UK's first region-based energy research acceleration hub, the Midlands ERA has delivered £110 million in industrial co-investment, catalysed £250 million in follow-on funding and helped to shape energy strategy. Benchmarking suggests that the level of funding catalysed could result, over a longer term, in a net gross value added of £3 billion and 10,000 new jobs.

ERA was established in 2016 through a £60 million capital investment from Innovate UK. It is a consortium of eight Midlands-based universities and the NERC British Geological Survey (BGS), and brings together 1,400 researchers from across the region. ERA's unique place-based design enables the development of long-term partnerships between regionally based researchers, businesses and civic organisations.

Impact: East Midlands



Environmental satellite data delivers multi-million-pound boost for East Midlands businesses

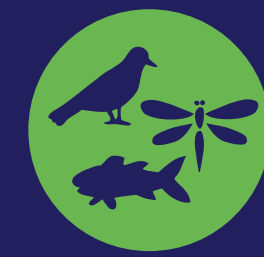


Jobs created, order books bolstered, new businesses established – over 130 firms have secured benefits worth millions thanks to NERC-backed environmental research at the University of Leicester harnessing satellite data to tackle real-world challenges.

The companies, 55 of which are based in the region, have tapped directly into the world-leading skills of the university's Earth Observation Science group, which is underpinned by long-term funding from NERC and capability from the NERC National Centre for Earth Observation (NCEO).

The success of these collaborations has also shaped development plans in the East Midlands, with new investments that include the £100 million Space Park Leicester development.

Impact: East of England



New freshwater lake restoration project restores rare species habitat in the Norfolk and Suffolk Broads



A major freshwater biodiversity hotspot that supports a quarter of Britain's rarest birds, insects and plants has adopted an ambitious £4.5 million restoration project based on work by the NERC-funded University of Stirling Freshwater Sciences research group.

The Hoveton Great Broad project, one of the largest shallow lake freshwater restoration projects ever undertaken in the UK, is currently improving the biodiversity and ecological resilience of this vital wetland habitat based on the latest science.

The ongoing transformation of this area of natural beauty into a sustainable species-rich wildlife haven is a draw for the 7.6 million annual visitors to the Norfolk and Suffolk Broads.

Impact: South West



Partnership delivers
£millions of benefits in
the South West while
improving water quality
and benefitting nature



A partnership between NERC-funded scientists and South West Water (SWW) has reduced water treatment costs, improved water quality and enhanced natural habitats. The outcomes have been so positive that SWW has increased investment from £4.5 million in 2010–15 to £17 million in 2020–25.

NERC scientists have been working with SWW since 2006 to transform the way that upstream water catchments are managed. The work is projected to have a natural capital benefit of over £40 million, and a 3:1 cost-benefit ratio for the investment made.

To date, 2,000 ha of peatland on Exmoor have been restored, cutting the peat content of drinking water by up to 50% and reducing storm water runoff by a third.

Impact: South East



Collaboration enables small businesses in the South East to become global trailblazers



Small businesses are growing rapidly and gaining a foothold in world markets thanks to transformational robotics technology developed in partnership with the NERC-funded National Oceanography Centre (NOC). The compact, low-cost autonomous vehicles are proving a game-changer in sea-based operations, attracting inward investment and international clients.

The tide of success stories includes AutoNaut, which attributes £1.5 million of its growth to its engagement with NOC, and ecoSUB Robotics which is achieving estimated global sales of £5 million per year.

NOC's Marine Robotics Innovation Centre provides fledgling firms with space, facilities and opportunities to harness NOC expertise. In addition, NOC's Marine Autonomous Robotic Systems team provides specialist input in developing, operating and maintaining the technology.

Impact: London



Traffic schemes improve air quality and health in London and beyond



London's air is cleaner and healthier thanks to ambitious emissions control schemes underpinned by NERC-funded science. Following the introduction of the Ultra Low Emission Zone, on average 44,000 fewer polluting cars per day drive in central London and nitrogen dioxide emissions have fallen 44%.

Daily measurement of atmospheric pollution across London, combined with predictive modelling, helped policymakers select the most effective traffic control options. By quantifying the impacts of air pollution on health, research has also helped drive public support for tighter, more ambitious emissions controls.

King's College London scientists worked in partnership with Transport for London, supported by NERC, MRC, ESRC, Defra, DHSC and NIHR. Similar interventions are now being planned across the UK and worldwide.

Investing for the future

NERC continues to support research, training and innovation that will deliver benefits to communities, economies and the environment across the UK

Examples of investment:

Regional Impact from Science of the Environment (RISE): a £17 million NERC programme bringing research organisations together with businesses, policy bodies and other organisations to deliver regional impact from environmental science. Four projects in Yorkshire, the South West, West Midlands and London have to date engaged nearly 600 partner organisations and helped to secure over £80 million in regional investment.

UK Geoenery observatories (UKGEOS): a £31 million network of subsurface observatories in Cheshire, Cardiff and Glasgow. Delivered by the NERC British Geological Survey, UKGEOS will provide valuable new insight into how geoenery and subsurface energy storage can help to deliver clean economic growth.

IAPETUS2 Doctoral Training Partnership: a £4.5 million programme in the North East and Scotland that aims to develop the next generation of leaders in environmental science. Funded by NERC, the initiative comprises nine universities and NERC-funded research centres, and 35 external partners including Ordnance Survey and the National Trust for Scotland.

Research Centres

NERC supports six research centres which provide leadership to the UK environmental science community and national capability services including emergency response and advice. NERC's long-term investment in the Centres enables large-scale, long-term science and delivery of facilities for the UK research community.

British Antarctic Survey (BAS)

British Geological Survey (BGS)

- Geological Survey of Northern Ireland (GSNI) – part of the Department for the Economy Northern Ireland (DfE)

National Centre for Atmospheric Science (NCAS)

National Centre for Earth Observation (NCEO)

National Oceanography Centre (NOC)

- Marine Delivery Partners – additional providers of national capability in marine science:
 - Plymouth Marine Laboratory (PML)
 - Marine Biological Association (MBA) incorporating the Sir Alister Hardy Foundation for Ocean Science (SAHFOS)
 - Scottish Association for Marine Science (SAMS)
 - Sea Mammal Research Unit (SMRU)

UK Centre for Ecology & Hydrology (UKCEH)

