NERC SCIENCE OF THE ENVIRONMENT

Natural Environment Research Council
Annual Report and Accounts 2016-17

HC 129

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Presented to Parliament pursuant to Schedule 1 of the Science and Technology Act 1965
Ordered by the House of Commons to be printed on 13 July 2017

HC 129

Any enquiries related to this publication should be sent to us at editors@nerc.ac.uk
This publication is available at www.gov.uk/government/publications

Print ISBN 9781474145336

Web ISBN 9781474145343

ID 18051709 07/17

Printed on paper containing 75% recycled fibre content minimum.
Printed in the UK on behalf of the Controller of Her Majesty's Stationery Office.

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Performance Report

Overview

The science of our changing world
The Natural Environment Research Council is the driving force for investment in UK environmental science. Scientists in universities and our research centres study and monitor the physical, chemical and biological processes on which life on our planet depends – from pole to pole, to the deep Earth and oceans, and to the atmosphere and space.

Understanding our changing planet is fundamental to our future well-being and economic prosperity. NERC advances the frontiers of environmental science by commissioning new research, infrastructure, innovation and training to deliver valuable scientific breakthroughs. We collaborate with other science disciplines, with UK business and with policymakers and we use the knowledge generated to deliver innovation and clean growth across the economy, with responsible management of the environment, to help us better prepare for tomorrow's challenges.

Our goals
To fund excellent, environmental science that helps us:

- understand and predict how our planet works;
- manage our environment responsibly as we pursue new ways of living, doing business, escaping poverty and growing economies.

With our researchers and stakeholders, we develop the priorities that provide focus for the environmental science community. Our research is often multidisciplinary and designed and delivered in collaboration with national and international partners. NERC is committed to developing UK and international capability across the environmental sciences. We fund centres and universities to carry out research and to train and support a world-class community of environmental scientists.

NERC operates a fleet of research ships and aircraft. We work in some of the world's most hostile environments and we invest in satellite technology to monitor environmental change on a global scale. This national capability (see page 17) allows the UK to deliver world-leading environmental science, support national strategic needs, and respond to emergencies. It includes the research and development activities which keeps this capability at the cutting edge.

NERC research centres and other service and facilities providers play a leading role in managing and delivering this capability for the UK. These are strategic investments that often take place over the long term, and will rarely be subject to open competition.

NERC's six environmental research centres are:

British Antarctic Survey (BAS)
British Geological Survey (BGS)
Centre for Ecology & Hydrology (CEH)
National Centre for Atmospheric Science (NCAS)
National Centre for Earth Observation (NCEO)
National Oceanography Centre (NOC)

Where their names appear in this report, they have been abbreviated.

Introduction
During 2016-17, we continued to fund world-leading environmental research, advancing the frontier of environmental science, contributing to UK prosperity, the well-being of people in the UK and beyond, and reducing costs across the whole economy.

The past year has seen some new opportunities with the Global Challenges Research Fund, the Industrial Strategy, and the announcement of a new research funding organisation called UK Research and Innovation that will come into existence in April 2018. We have made sure NERC is in a sound position to effectively navigate and benefit from these opportunities. We have engaged our community and will continue to do so to ensure the relevance and strength of environmental science in the UK remains at the heart of responsible management of our planet.

The economic impact of our research
2016-17 further confirmed that sustained NERC investment and partnership generates large, long-term economic and societal benefits – driving UK productivity and competiveness while building a safer, wealthier and more secure world.

Our environmental science is world-leading and highly collaborative – we harness the world's best scientists and knowledge to tackle complex environmental, economic and societal challenges. NERC funds the best of UK environmental science, and promotes collaboration between science disciplines, between nations and between scientists and users of science.

Two analyses by Deloitte during the year provide specific evidence of the ongoing economic impact of our research. The first shows that NERC research has led to economic and environmental benefits for the UK by helping to strengthen regulation in the water industry while avoiding disproportionately expensive requirements. The report estimates NERC research in this area will generate up to £7bn in cost savings for UK businesses between 2015 and 2051. It highlights NERC's impact in setting the Water Framework Directive water quality standards before and after the directive was introduced in 2000, which ensured every revision was based on robust, reliable science. The savings this led to accrued by helping to strengthen regulation while avoiding disproportionately expensive requirements. Achieving these savings also means the implementation of the WFD is currently delivering additional net benefits to the UK worth £5.5bn from cleaner water.

A second analysis revealed that decades of research by NERC-funded scientists led to a fundamental contribution to the UK successfully banning harmful marine pollutants, enabling a surge in UK shellfish production. Ground-breaking studies of the negative effects of anti-fouling chemicals and crucial UK-specific insights opened the way to evidence-based regulation, which accelerated the recovery of damaged ecosystems. The analysis estimates these bans generated economic, environmental and social benefits worth £908m up to 2014. Between £173m and £236m of those benefits are specifically attributable to NERC science.

Our 2016 Impact Report also reveals how our science helps safeguard nature's services. NERC-funded researchers have been at the heart of designing, implementing, evaluating and improving Payments for Ecosystem Services schemes around the world. These schemes help prevent the degradation and unsustainable use of valuable ecosystems by enabling those who benefit from the services to give landowners, rural communities and others a powerful economic incentive to protect them. In addition, the

report describes how our science and capability helps the world's poorest and most vulnerable people in developing countries by saving lives, promoting prosperity, and boosting economies. In particular, it shows how NERC-funded scientists helped:

- maintain food security in Bangladesh by showing that groundwater can safely be used for irrigation;
- save lives and protect economies in Africa by developing an innovative weather and climate forecasting system;
- save lives in the Caribbean by showing how to reduce the risk of landslides.

In other areas of the UK economy, NERC's investment in PhDs helps to keep the UK competitive and innovative by delivering top talent and skills. Survey findings highlight that seven to nine years after graduation, over 50 per cent of doctoral graduates work outside academia – and most of these are directly involved in innovation. According to three-quarters of employers surveyed, losing their doctoral graduates would mean sustaining a business-critical or significant impact, with one-fifth saying their business could not function.

Major scientific discoveries

In 2016-17, NERC investments led to significant discoveries which are relevant to all UK citizens, clearly demonstrating how environmental science touches us all.

In June 2016, researchers found the first clear evidence that the thinning in the ozone layer above Antarctica is starting to heal in a study authored by Dr Ryan R Neely of NCAS and colleagues. In the mid-1980s, scientists from BAS noticed that the October total ozone over the continent was dropping. This new recovery was only possible thanks to that discovery, which led to international agreements to reduce ozone-depleting emissions. Early analyses commissioned by NERC in 2015 demonstrate that NERC's ozone research has spared thousands of lives and led to lower food prices, leading to savings of £1.3 billion every year for the UK, thanks to the early implementation of the Montreal Protocol.

In a correlation study conducted by CEH published in August 2016, the large-scale, long-term decline in wild bees across England was linked to the use of neonicotinoid insecticides. Over 18 years, researchers analysed bees that forage heavily on oilseed rape, a crop widely treated with neonicotinoids. The scientists report that half of the total decline in wild bees is due to the use of these chemicals. Several recent studies conducted in the laboratory and in the field have identified a negative effect on honeybees and bumblebees from the use of neonicotinoids, but this is one of the first studies to look at the long-term impacts of these substances. The results of a separate causation study by CEH are due to be announced in 2017.

Another study, published in September 2016, showed that the UK is one of the 'least natural countries in the world' with one in seven species facing extinction. CEH contributed to the State of Nature 2016 report, along with more than 50 other organisations. The report found that modern agricultural techniques have had a major impact on wildlife over the last four decades – and it had been 'overwhelmingly negative'.

A NERC centre report published in December 2016 confirmed that the UK Winter 2015-16 floods were one of the most extreme and severe flood episodes in 100 years. The study, carried out by scientists from CEH in collaboration with the British Hydrological Society, recognises that the winter 2015-16 episode ranks alongside the floods of 1947 as one of the largest flood events of the last 100 years at least. The period from November 2015 to January 2016 was the wettest three months in records dating back to

1910, while December was both the wettest and, on average, the warmest on record in the UK.

Investing in national capability and capital funding
During the year, we made sure our support through national capability remains fit for purpose to sustain excellent UK environmental science.

Early in 2016, we ran a campaign in which we sought ideas for a name for the UK's new state-of-the-art polar research ship, due to become operational in 2019. In May 2016, it was announced the new ship would be called RRS *Sir David Attenborough*, after the renowned naturalist and broadcaster. Currently being built at Cammell Laird shipyard in Birkenhead, the ship is set to transform the UK's polar research capability. The new ship will deliver world-class polar and Earth system science in support of UK government and NERC strategies, contribute to the international positioning of UK science and science strategy, help train the next generation of environmental scientists, and enable knowledge, technology transfer and innovation to public and private stakeholders. Operated by BAS, the £200m vessel will help maintain Britain's position at the forefront of climate, polar and ocean science, providing a research platform from which scientists will tackle some of the most important environmental issues facing humanity.

The ship reached her first construction milestone in October 2016 with the ceremonial laying of her keel. Sir David officially started the keel laying process at Cammell Laird in an event that included guests from marine, Antarctic and science communities, BEIS, NERC and BAS and the entire Cammell Laird workforce. At the same event, a subsea vehicle was named *Boaty McBoatface* in recognition of the popularity of the name proposed during our *Name Our Ship* campaign. The Autosub Long Range autonomous underwater vehicle is operated by NOC and will be used by oceanographers to measure ocean and seabed properties over oceanic scales. *Boaty McBoatface* will also be a focal point of a new £1m government-funded Polar Explorer Programme, an educational initiative that aims to inspire the next generation of scientists, engineers and citizens with the RRS *Sir David Attenborough* and polar science.

Another important development in October 2016 was the opening of the Lyell Centre at Heriot-Watt University by Deputy First Minister of Scotland, John Swinney. The pioneering global research centre for Earth and marine science and technology brings together the expertise of BGS with the academic innovation of Heriot-Watt, and will ensure future generations of researchers are equipped and capable of meeting the global science and technology challenges facing the world. Through championing innovation, collaboration and enterprise, this Scottish-based research facility is tackling some of the major issues of natural resource and energy supply and security in a sustainable way. Work underway at Lyell by world-leading academics and scientists is already looking at solutions to critical global environmental problems.

Earlier in the year we announced a £15m investment in Marine Autonomous Systems and sensors over a five-year period. A £10m investment will be made through NOC to ensure the UK remains at the forefront of global marine science and technology innovation by developing autonomous underwater vehicles, including an Autosub Long Range. This will support future under-ice and deep-ocean science, including a number of upcoming major marine research programmes such as the Changing Arctic Ocean programme.

In a first for the UK, new £31m research facilities, announced in April 2017, will see UK scientists gather critical data on the use of geoenergy technologies to help meet UK energy needs. The funds will build the

UK Geoenergy Observatories, where researchers will carry out scientific monitoring and observation to establish the state of the current environment and determine if underground energy technologies have a significant effect on it.

Our most significant research and innovation initiatives

2016 saw us continue to push the frontier of environmental science, helping to solve major environmental issues that affect us all, by investing in world-leading environmental science research.

Towards the end of 2016, we funded two highly ambitious projects worth nearly £9m that will help two UK regions, Yorkshire and South West UK, benefit from its world-class environmental science research. The two projects will see two of the UK's top universities working with businesses and policymakers in their area to generate a range of economic and societal benefits. The aim is to translate excellent NERC-funded research into actions or policies that improve performance, resilience and sustainability, and support local growth. South West Partnership for Environment & Economic Prosperity, worth £4m over five years and led from the University of Exeter, aims to significantly improve the economic prosperity of South West UK. Yorkshire Integrated Catchment Solutions Programme, worth £4.7m over five years and led from the University of Leeds, aims to generate economic impacts worth £50m to Yorkshire.

Early in 2016, we commissioned five highly ambitious research programmes, worth £34m, that will enable our research centres to work closely together to tackle major scientific and societal challenges. This is the first result of a new way of allocating national capability funding designed to facilitate more ambitious science than any single research organisation could provide. The new approach to allocating this funding does not use new money, but realigns and refocuses the capabilities of the centres to drive more ambitious science through collaboration. It is also intended to maximise the value of these investments by providing the foundation for other NERC-funded activities.

In the summer of 2016, in collaboration with the Indian Ministry of Earth Sciences, we took the Facility for Airborne Atmospheric Measurements research aircraft to India to investigate the south Asian monsoon and the processes which drive it. Findings could help forecast the arrival of the Indian monsoon more accurately than ever before; the precise timing and location of the rains is vital to the region's economy, which is dominated by farming. The project received combined funding of approximately £8m from NERC, the Newton Fund, MoES and the UK's Met Office.

We are collaborating with the US's Rockefeller Foundation to support the United Nation's 17 Global Goals, which aim to eliminate poverty and hunger and help fight climate change over the next 15 years. The collaboration will identify gaps in knowledge and research necessary to fulfil the ambitious Global Goals.

In October 2016, we announced The Role of the Southern Ocean in the Earth System five-year research programme to understand how the Southern Ocean shapes Earth's climate. This huge body of seawater absorbs vast quantities of atmospheric carbon dioxide, having captured half of all human-derived carbon to date. But this so-called Southern Ocean carbon sink is often singled out as the Achilles' heel of computer models that aim to understand climate change, predict its evolution, and which ultimately help define international climate policy.

In November 2016, we partnered with the Arts & Humanities Research Council and the Economic

& Social Research Council to fund projects worth just over £3.5m that will help communities in some of the poorest regions of the world understand, prepare for and manage a range of natural and man-made environmental hazards. The Building Resilience research programme is funded under the Global Challenges Research Fund, and will take an inter-disciplinary approach to understanding what causes environmental dangers like droughts, land degradation, volcanoes, earthquakes and flooding, and build in preparedness to help countries cope. The £1.5bn GCRF was unveiled by the government in the 2015 Spending Review to support cutting-edge research that addresses challenges faced by developing countries.

We have also joined forces with the Indian government and the country's scientists to tackle air pollution in Delhi and help secure improved water quality nationwide. Two announcements were made during the India-UK TECH Summit in New Delhi at the end of 2016, attended by UK and Indian prime ministers, Theresa May and Narendra Modi. The summit brought together British and Indian science and technology experts and businesses to connect and explore the future of India-UK collaboration. A series of joint UK-India research initiatives worth up to £80m were announced by the UK Science Minister, Jo Johnson and Dr Harsh Vardhan, Union Minister of Science & Technology & Earth Sciences, India.

In the polar regions, NERC teamed up with the US's National Science Foundation to jointly fund around $25m (approx. £20m) in research over the next five years, and make available additional funding for associated logistical support, to understand a massive Antarctic glacier whose collapse could significantly affect global sea level. In the same continent, construction expert BAM was chosen to partner with BAS to modernise UK Antarctic and other research facilities, enabling British scientists to continue delivering world-class research into some of the most important issues facing our planet.

In other Antarctic developments, in February 2017 we completed the relocation of Halley VI research station 23km from its present site, putting it upstream of a previously dormant ice chasm that began to show signs of growth in 2012. In early 2017, BAS made the decision not to winter at the research station for safety reasons. The station, which is located on the floating Brunt Ice Shelf in Antarctica, shut down during the 2017 Antarctic winter. Changes to the ice, particularly the growth of a new crack, presented a complex glaciological picture that meant BAS scientists were unable to predict with certainty what would happen to the ice shelf during the Antarctic winter. As a precautionary measure, BAS removed its people before the Antarctic winter began.

Public engagement and communications

During the year, through our public engagement and communications work, we have demonstrated how environmental science is relevant to us all. We ran three showcase events during October 2016 to engage our key audiences in the north of England through a broad-based showcase of NERC's leadership and investment in world-class environmental science.

The three events included:

- Taking the RRS *Discovery* to Liverpool;
- The ceremonial laying of the keel of RRS *Sir David Attenborough*;
- Taking the Facility for Airborne Atmospheric Measurements research aircraft to Manchester.

The UK's newest and most advanced oceanographic research vessel, the RRS *Discovery*, left her home port of Southampton to sail to Liverpool and spend several days moored at Liverpool Waterfront. During the event, around 1,300 people visited the ship, including

schools, marine and Merseyside stakeholders, Angela Eagle MP, the Lord Mayor of Liverpool, and Liverpool City Councillors. The event attracted over 60 pieces of media coverage, and achieved strong online engagement.

At the end of October 2016, the Manchester showcase began with the arrival of the UK's most advanced scientific research aircraft at the city's main airport. The FAAM aircraft was on show for several days alongside approximately 40 exhibitions designed to bring to life the environmental science we live and breathe. While in Manchester, the aircraft and exhibitions received an average of 1,050 people per day.

On the aircraft's journey from East Midlands Airport to Manchester Airport, scientists from NCAS took measurements of the concentrations of pollutants coming from the ground over the north of England. Information gathered during the flight will be used to enhance our understanding of air quality in the UK in the years to come by honing methods of cutting-edge research into the number of tonnes of emissions from our cities. The science conducted on the flight and the aircraft's arrival into Manchester attracted local and national broadcast media coverage, achieving over 55 pieces of coverage in key outlets such as the BBC's *Today* programme, BBC *Breakfast* and Sky. Engagement with key stakeholders was also high on social media platforms, Twitter and Facebook.

Both the Liverpool and Manchester showcase events were invaluable in helping us articulate a clear identity and position for NERC, significantly build our profile and influence by successfully driving awareness of the value and impact of NERC science, and build our reputation as a leader in environmental science.

We have increased our public engagement ambition and presence with a new £500k funding stream together with dedicated capacity, programme and infrastructure to support our long-term commitment to public engagement, building strong engagement between members of the UK public, environmental science and researchers. We launched our first public engagement call in 2016: Engaging the UK public with the big issues of environmental science, with short, focused, pilot projects that started in January 2017. Much of our activities in this area will be supported externally by reputable organisations with a high profile and strong track record in public engagement, such as the Association of Science and Discovery Centres and through annual showcase events. We plan further public engagement calls in 2017 to further build on these ambitions. Early in 2017, we commissioned a survey of public attitudes, specifically towards environmental science to help inform our public engagement activities throughout the year. Looking ahead, we will convene public dialogue activities to inform and allow NERC to make decisions relevant to society.

In other developments in January 2017, BAS scientist Dr Emily Shuckburgh OBE co-authored a book on climate change as part of the new Ladybird Expert series. Her co-authors are His Royal Highness The Prince of Wales and leading British environmentalist Tony Juniper.

Looking ahead

Reform of the UK research and innovation funding landscape continues apace. The Higher Education and Research Act (2017) will enact the Nurse Review (2015) and HMG White Paper Success as a Knowledge Economy (2016). From April 2018 the Act will revoke NERC's Royal Charter and

establish all seven Research Councils, Innovate UK and Research England as constituent bodies of a new non-departmental public body, UK Research and Innovation.

The creation of UK Research and Innovation promises a unified voice for the UK research and innovation ecosystem, more coherent national strategy, better prioritisation of public investment, and more effective delivery of cross-cutting or multi-disciplinary investments. Government has already allocated additional funding to be administered by UK Research and Innovation to 2021, including the £1.5bn Global Challenges Research Fund and the £4.7bn Industrial Strategy Challenge Fund. In the coming year NERC will work with partners across the new organisation to plan and prioritise this new investment, and to create significant opportunities for environmental researchers to contribute to multidisciplinary challenges in the national interest.

Within the new organisation NERC will retain its unique role and identity as the leading UK funder of environmental research, innovation, institutes, postgraduate training and public engagement. NERC will continue to receive directly allocated budgets and will operate with autonomy in its own environmental science domain. In the coming year NERC will work with BEIS and shadow leaders of UK Research and Innovation to establish new governance, delegation frameworks and ways of working for a successful transition into the new organisation. At the same time, NERC will plan and deliver its own investment strategy, with continuity across years, to sustain the health and impact of the UK's world-leading environmental science community.

As part of this, we are committed to securing the future of our research centres, while NERC's Research and Innovation directorate will continue to commission and improve some aspects of our services and facilities provision.

Professor Duncan Wingham
Chief Executive and Accounting Officer
21 June 2017

Sir Anthony Cleaver
Chairman

Going concern assessment

NERC's statutory financial statements have been prepared using accruals accounting in accordance with the UK Government's Financial Reporting Manual (FReM) for 2016-17 and the accounts direction issued by the Secretary of State. NERC has received its budget allocation from BEIS for 2017-18 with further indicative funding levels to 2019-20. The financial statements have thus been prepared on a going concern basis. Further details can be found in Note 1.3 Going concern in the Financial Statements.

Financial summary

NERC concludes the accounting period with a balanced financial position with a 0.0% variance compared to available budget for near cash and capital. There is a non-cash deficit of £5m. A comparison with the previous accounting period is shown in Table 1.

The reconciliation between NERC's outturn with its Annual Accounts for 2016-17 is shown in Table 2.

Table 1: NERC outturn 2016-17 and 2015-16 comparison

	2016-17 £000	Re-presented[1] 2015-16 £000
Science budget	416,109	390,523
Other BEIS funding	16,265	12,889
Earned income	70,356	69,674
Total funding	502,730	473,086
Expenditure	507,676	471,037
(Deficit)/Surplus	(4,946)	2,049
Variance (%)	-1.0%	0.4%
Surplus excluding non-cash	33	478
Variance (%) excluding non-cash	0%	0.1%

Note:
1. 2015-16 figures have been re-presented to treat income received from the former Department of Energy and Climate Change as other BEIS funding following its merger with the Department for Business, Innovation and Skills to form the new Department for Business, Energy and Industrial Strategy

Table 2: NERC outturn and annual accounts reconciliation 2016-17

	2016-17 £000
Net expenditure[1]	381,283
AME changes[2]	(10,266)
Other BEIS funding[3]	(16,265)
Direct Capital	71,927
NBV capital disposals[4]	(5,624)
Outturn	421,055
Science budget (DEL)	416,109
Reported surplus[5]	(4,946)

Notes:
1. Taken from the Statement of net expenditure for the year ended 31 March 2017.
2. Provision utilisation, movements, unwinding of discount and change in discount factor score as AME and are outside the scope of DEL, as are price movements in investments and impairments upon first professional valuations. Figures taken from SoCNE (Provision Expense), Note 7 Property, plant & equipment and Note 11 Provisions.
3. Includes Newton funding of £8,034k, funding from the former Department of Energy and Climate Change of £1,724k and BEIS notional costs of £5,950k.
4. In accordance with Financial Reporting Manual.
5. Reported deficit of £4,946k comprises of £33k near cash surplus and £4,979k non-cash deficit.

Forward Look

Each year NERC invests around £290m in resource and £34m capital in world-class laboratories, plus additional capital in large research infrastructure. We focus our investment where environmental science enhances prosperity, security and wellbeing in the UK and globally.

Following the 2016 Autumn Statement, and the outcome of the 2015 Spending Review, the nature of scientific funding in the UK is changing. Significant elements of the budget are becoming themed in a cross-cutting manner.

The extension and expansion of the Newton Fund to £735m over seven years provides many opportunities for NERC. These include strengthening and expanding our bilateral partnerships with emerging knowledge economies and further contributing to delivery of the UK's Official Development Assistance objectives. Over the next three years, NERC will commit £32m of Newton funding to support collaborative research and innovation partnerships with China, Colombia, India, South Africa and South East Asian countries.

NERC will manage its budgets to support an environmental science base that balances:

- UK and international priorities;
- single and multi-disciplinary research;
- discovery science and strategically directed research;
- the diversity of environmental science disciplines, sectors and research centres.

To achieve these balances, NERC will review and evolve its budget processes and allocations as the implications of the Global Challenges Research Fund emerge. The GCRF, worth £1.5bn over five years, will provide new opportunities for the UK science community to undertake interdisciplinary activities that address complex global societal challenges and promote the economic development and welfare of developing countries.

The Industrial Strategy Challenge Fund, worth an additional £2bn per annum by 2020-21 was also announced in the Autumn Statement 2016. This provides a significant opportunity for NERC, working with other research councils and Innovate UK, to develop truly multi-disciplinary approaches to addressing key industrial challenges, driving growth in the UK. We will continue to engage with our partners to maximise the opportunity of this fund in the coming year.

Innovation activities will include building relationships with private sector businesses through strategic-level partnerships and industry-led innovation programmes with a focus on insurance, risk, and renewable energy sectors.

NERC will continue to strengthen relationships with key government bodies and civil society organisations including Defra, the Welsh and Scottish Governments and the National Trust. Specific plans include developing a new initiative to define and prioritise environmental evidence for the future. This programme of activity will pave the way to addressing challenges and opportunities that present from the UK leaving the European Union, including optimising sustainable environmental management and ensuring the resilience of our ecosystems and the quality of our water and air. At a time when focus is on short-term requirements, this programme will define, prioritise and address the medium to long-term knowledge gaps in the environmental science evidence base. It will identify where NERC investments in the wider environmental research landscape and interdisciplinary knowledge can help address these challenges to inform decisions and pioneer innovative policies and solutions. It will take a holistic, systemic and outcome-driven approach.

We welcome the uplift and opportunities of the Autumn Statement announcement, expansion of the Newton Fund, evolution of the GCRF, and introduction of the Industrial Strategy Challenge Fund. NERC is well-placed to meet the challenges and opportunities presented by our external environment, for instance in the final shape of an exit from the European Union. We will meet these challenges, and we will of course have to remain agile to ensure that environmental science plays its full role in taking some of the opportunities created by this unprecedented investment in science by the Government.

We responded to a number of important announcements this year. These include the news in the 2015 Autumn Statement that over the next four years, progressively more funding will be allocated to research for international development, termed Official Development Assistance research; a fund the UK environmental science community is in a strong position to compete for. In May 2016, the Government announced the creation of a new, strategic body that will bring together the seven research councils, Innovate UK and the research funding from the Higher Education Funding Council for England. This new body will be called UK Research and Innovation and is due

to come into existence on 1 April 2018. Finally, after announcing the Industrial Strategy Challenge Fund in the 2016 Autumn Statement, the Government announced its green paper, Building our Industrial Strategy, in February 2017, at the same time as launching a consultation on how to address long-term challenges for the UK economy. NERC responded to the consultation, considering how environmental science will ensure a modern industrial strategy deliver productivity, jobs and growth across the UK.

Performance Analysis

NERC regularly monitors, evaluates and reports on progress against the NERC Royal Charter, strategy and delivery plan. This informs our decision-making and demonstrates we are investing public funds effectively and efficiently to make economic and social contributions both in the UK and internationally.

The delivery plan lays out budgets and investment priorities for the period 2016 to 2020. During this period, NERC will deliver its strategic priorities by investing in world-leading research, skills and innovation that enables UK business, government and citizens to benefit from natural resources, build resilience to environmental hazards, manage environment change, discover new knowledge, and promote sustainable development. Details of the impact of our funding are published in the 2016 Impact Report, available at **www.nerc.ac.uk/about/perform/reporting/reports/impactreport2016/**

Environmental science for a changing world
NERC fosters UK and international partnerships so that scientists, business, government, and civil society can work together to address the challenges and opportunities of managing the environment; co-design and co-deliver new environmental science; find and apply existing scientific knowledge; and drive UK innovation, jobs, economic growth and societal wellbeing.

NERC has this year completed a major programme on ocean acidification in partnership with DECC and Defra. Ocean acidification is the long-term change in seawater pH and other components of the marine carbonate chemistry system driven by increasing atmospheric carbon dioxide. This work has shown how susceptible the oceans will be to future increases in CO_2 and the particular vulnerability of coastal communities. In January 2017, NERC submitted evidence to the House of Commons Science and Technology Committee inquiry into ocean acidification, with four of our top researchers on the topic and NERC's Associate Director of Research attending an oral evidence session in March 2017.

In response to the Paris Agreement in December 2015 where 195 countries agreed to pursue efforts to limit the temperature increase to 1.5°C, NERC and BEIS are jointly funding a research programme to provide timely evidence to inform policy on the steps needed to achieve this target. Research will study the environmental impacts of a 1.5°C temperature rise compared with 2°C, and the feasibility of actions that would limit warming to 1.5°C.

Innovation and impact
NERC has continued to work across the innovation ecosystem to enhance the impact of our research, transforming the knowledge, data, capabilities and skills of our community into innovative value-adding approaches, tools and solutions for UK business, policy-making and regulation.

In April 2016, NERC joined forces with Marks & Spencer in a partnership that aims to shape the future of sustainable food production. NERC invested in three innovations projects focused on water risk in global food supply chains with WWF and M&S.

We have continued to invest in industry challenge-led innovation programmes and launched our fourth innovation programme, on the topic of oil and gas, in November 2016. Across four innovation programmes, NERC is actively engaging with over 50 of the UK's leading businesses in sustainable food production, infrastructure, and energy sectors. For example, the Environmental Risks to Infrastructure Innovation Programme invested £1.2m with some of the leading infrastructure asset owners in the UK. Projects include the development of an early warning system for jellyfish blooms for UK coastal nuclear power facilities with EDF Energy. Similarly, through our oil and gas innovation programme, we have invested £500k in innovation projects tackling issues such as the development of a strategic framework for the comparative assessment of pipeline decommissioning options for the oil and gas sector.

In October 2016, the Regional Impact from Science of the Environment programme awarded two ambitious projects worth nearly £9m that will help two UK regions benefit from their world-class environmental science-base. The projects will see top universities[1] working directly with businesses and policymakers in the north east and south west regions of the UK to generate a range of economic and societal benefits that will improve performance, resilience and sustainability, and support local, place-based growth.

International innovation activities have included investment of £1m to pump-prime relationship development, network building and future activity development in countries on the Official Development Assistance list. We have developed our

1 South West Partnership for Environment & Economic Prosperity (SWEEP), worth £4m over five years is led by University of Exeter. Yorkshire Integrated Catchment Solutions Programme (Yorkshire iCASP), worth £4·7m is led by University of Leeds

partnership with the ESRC and the US's Rockefeller Foundation, articulating a research, innovation and research translation agenda in support of the Sustainable Development Goals.

NERC has committed to working efficiently and productively across the public sector to increase the economic and societal impact and take-up of NERC science into policy-making and regulation through:

- better communication of NERC science to government, parliament, the private sector, and intermediaries;
- more consideration of user needs/engagement of users in research;
- funding more user-relevant research;
- acting as a source of independent, coordinated scientific advice.

To this end, in May 2016, NERC set up a forum for Research and Innovation for our Dynamic Environment, the RIDE Forum. The RIDE Forum brings together over 20 public sector partners including all the research councils, Innovate-UK, the Met Office, Defra and devolved governments, and aims to enhance the impact of the UK's publicly-funded environmental change research, evidence and innovation by enabling members to co-ordinate strategic activities. By adding value, leveraging resources and avoiding duplication, members can be more efficient in their use of public funds to give decision-makers the knowledge they need to respond to the challenges and opportunities presented by environmental change.

Working with Defra, the devolved governments and the Environment Agency, NERC co-funded £350k of research that delivered directly to the independent evidence report of the risks and opportunities to the UK from climate change published in July 2016. This report will directly inform the 2017 UK Government Climate Change Risk Assessment. NERC has also continued work and co-funding with other research councils, for example, we have co-funded, with the Economic & Social Research Council, the multi-million pound Centre for Evaluation of Complexity Across the Nexus (in partnership with DECC, Defra, EA, FSA). This centre is developing and improving methods for the evaluation of policies in complex settings across the environment-food-energy network, piloting these methods on a range of evaluation projects; organising educational programmes for practitioners, academics and policymakers; and publishing guides and toolkits for evaluators, those commissioning evaluations, and policy audiences.

This year NERC has co-funded dedicated fellowships and placements set up in partnership with public and civil society organisations such as the Marine Management Organisation, GO-Science, and the National Trust. NERC has also appointed two NERC senior fellowships to work with the Scottish and Welsh Governments, with an important remit to link NERC science with policymaking at the highest level. All of these placements have led to strengthened relationships between NERC and our partners and led to collaboration on, for example, enhancing the evidence-base and brokering scientific advice to inform development of the Welsh Government's National Natural Resources Policy that will be published in 2017.

Working in partnership across the research councils, NERC has played a key role in delivery of the first year of the GCRF. We have committed £3.2m through the NERC-led GCRF building resilience call, the BBSRC-led global agriculture and food systems call and the MRC-led global infections and non-communicable disease calls. These foundation calls have stimulated the creation of inter-disciplinary international research communities, enabling development of broader, deeper and more effective collaborations with beneficiaries and user organisations at the forefront of the development agenda. Furthermore, they have enabled testing of new innovative ideas and inter-disciplinary approaches to addressing environmental development challenges.

Strategic research programmes

Strategically-directed research provides the knowledge needed to meet the greatest challenges facing society. NERC funds programmes that help business, government and society benefit from natural resources and ecosystem services, build resilience to environmental hazards and manage environmental change. NERC works with national and international partners to co-design, co-fund and co-deliver programmes that meet UK stakeholder needs and leverage additional funding, drawing upon the world-leading excellence and creativity of the UK researcher base.

Over the past year, NERC has launched numerous new research initiatives. For example, in late 2016 NERC launched a £8.3m programme on Greenhouse Gas Removal from the Atmosphere that will fund research to improve our knowledge of techniques to remove CO_2 and other greenhouse gases from the atmosphere at a climatically-relevant scale. The programme covers a wide range of aspects of this problem including environmental, technical, economic, governance and the wider societal aspects of such approaches. The programme is supported both by NERC, the Engineering & Physical Sciences Research

Council, the Economic & Social Research Council, and BEIS, with in-kind contributions from the Met Office Hadley Centre and the Science & Technology Facilities Council.

The UK must fulfil statutory obligations for monitoring the state of the sea. This means there is a requirement to collect data that will show the health of marine ecosystems and enable effective management of Marine Protected Areas. Autonomous technologies will make marine observation more cost-effective, while accelerating our understanding of marine ecosystem function and its response to climate change and other pressures. Building on major capital investments in this area, NERC, Defra and WWF-UK are undertaking a programme that will address the scientific and technical challenges of using new technologies to deliver more efficient and integrated observations which are capable of meeting science and policy requirements now and into the future.

The GCRF and the Newton Fund have provided new opportunities for the UK science community to develop partnerships with, and engage in research in, developing countries. The Understanding & Sustaining Brazilian Biome Resources programme has been supported through the Newton Fund and seeks to improve our understanding of the role of biodiversity in the functioning of ecosystems, the drivers and impacts of change, options for management and restoration, and how this can promote economic development and welfare in Brazil.

El Niño is a climate cycle in the Pacific Ocean with a global impact on weather patterns and typically results in drought conditions in Southern Africa and Southeast Asia and enhanced rainfall in Eastern Africa and South America. The 2015-16 El Niño event was one of the three strongest that have been recorded since 1950. NERC, through GCRF funding, together with the Department for International Development, undertook a streamlined commissioning process to fund a range of research projects where there was an urgent need to collect novel data. Fourteen projects have been supported looking at a range of impacts including the spread of waterborne disease in Peru, floods and droughts in southern Africa and wildfires in South-East Asia.

National capability

National capability funding describes the element of NERC-funded activity directly procured by NERC due to a combination of its scale and complexity. These features result in a need for NC provision with a critical mass of size and budget that makes direct procurement the only practical option. NC comprises: NC-science, which integrates over at least national and decadal time-scales; NC-large-scale research infrastructure such as ships; smaller-scale NC-services, facilities and data that provide a service to the environmental science research community; and delivering NC-national and public good activities, which comprise advice to government departments and wider information to the public at large. Budgets for these four NC categories are determined by NERC Council as part of its business planning to deliver NERC's strategy.

Achievements in 2016-17 include:

- NERC commissioned five ambitious new programmes worth £34m which started on 1 April 2016. These will see the centres working together to tackle major scientific and societal challenges such as making agriculture more sustainable and improving our understanding of Southern Ocean's role in the global climate.
- During 2016-17, NERC challenged its research centres to develop a set of programmes that will deliver against NERC's Official Development Assistance commitments. This led to the commissioning of six ambitious new NC science programmes, worth £26m in total, which will see the centres tackle major scientific and societal challenges designed to address a development need, and focus on developing country problems. These include: developing early warning systems for atmospheric hazards; sustainable resource use to improve human health and support economic development; and addressing challenges of coastal communities.
- NERC deployed two large heavy infrastructure cruises on the RRS *James Cook* using multiple autonomous systems, including the ROV Isis, Autosub and mooring technology; one investigating deep-sea population connectivity in the Rockall Trough, northwest of UK, and the other assessing seafloor mineral deposits off the southwest coast of Portugal. The latter cruise also responded to a Mayday call from a nearby sunken yacht off the North West African coast, resulting in the successful rescue and repatriation of the five people on board.
- Shipbuilder Cammell Laird started building the UK's new polar research vessel, the RRS *Sir David Attenborough*. The ship reached her first construction milestone in October 2016 with the ceremonial laying of her keel. Sir David officially started the keel laying process at the shipbuilder in Birkenhead in an event that included guests from marine, Antarctic and science communities, BEIS, NERC, BAS and the entire Cammell Laird workforce.
- October 2016 saw the official opening ceremony of the new £20m Lyell Centre at Heriot-Watt

University. The centre is a major joint BGS/Heriot-Watt research centre for geological, petroleum and marine sciences. The relocation of BGS staff has been delivered on time and within budget.

- Evaluations were carried out on the NERC services, facilities and data portfolio, worth £19m a year. The evaluations were conducted by independent expert panels, who were asked to evaluate the performance of NERC's 26 services and facilities and six data centres in providing a service to the scientific and wider community during 2011-15. Following the evaluations, NERC has begun to identify the strategic need for service, facilities and data, and commission the new portfolio in 2017-18.

Discovery science

Discovery science – research that is driven by curiosity rather than by high-level strategic priorities – leads to fundamental advances in our knowledge of how the Earth works – past, present and future – and underpins the world-leading position of UK environmental science. It has repeatedly delivered lasting benefits to our economy, society and wellbeing that were unforeseen when the research began.

NERC's large grants support adventurous, large-scale and complex research projects costing up to £3.7m tackling big science questions that cannot be addressed through other NERC funding opportunities. Recent examples include studies of volcanism in the African Rift Valley, infectious diseases in the environment and what determines an individual's vulnerability, and impacts of microbes and particulates on the melting of the Greenland ice sheet.

The Lead Agency Agreement between NERC and the US National Science Foundation allows researchers to submit a single UK-US collaborative proposal to either NERC or NSF. The agreement means that the proposal will only be reviewed once, greatly simplifying the process and avoiding 'double jeopardy'. The scheme has been running since July 2015 and in that time six grants have been awarded where NERC has been the lead agency and 11 where NSF has led. Examples of projects funded through this route include the role of termites and microbes in carbon fluxes and the evolutionary response of southern ocean phytoplankton to climate change.

Postgraduate training

Doctoral training equips the next generation of researchers with essential knowledge and skills for UK science, business and government across all sectors of the economy. NERC invests around £26m a year in postgraduate training funding, with over 1,300 students at any time in universities, research institutes and industrial partners.

In October 2016, NERC announced investment in a Centre for Doctoral training in modelling and quantitative skills in ecology and evolution. The CDT will train the next generation of UK environmental scientists in various aspects of data collection, modelling, statistical analysis and inference of relevance. Training will be offered with a focus on ecosystems and relevant evolutionary processes, linking theory with data collection, assimilation, analysis, interpretation and visualisation, leading to prediction, with modelling at its core.

Forty-two Advanced Training Short Courses and 36 CASE students were funded through the 2016 competitions.

The former support postgraduate training aimed at providing individuals with particular, specialist skills and training within the NERC science remit. CASE studentships provide doctoral students with a first-rate, challenging research training experience in the context of a mutually-beneficial collaboration between academic and non-academic partner organisations.

Thirteen fellowships were funded through the 2016 Independent Research Fellowships competition. This scheme is designed to develop scientific leadership among the most promising early-career environmental scientists. It gives all fellows five years' support, which will allow them sufficient time to develop their research programmes and to establish themselves as research leaders.

Enabling change

To deliver our strategic goals for excellence, impact and efficiency, NERC has undertaken a programme of self-assessment and continuous improvement during the year. That programme, which has assessed themes ranging from our internal organisational structures to our funding mechanisms, has helped to ensure that our organisation is fit for the future, regardless of what that future holds. NERC also continues to work with other research councils, BEIS and other partners to ensure that projects, proposals and change programmes are aligned with the direction of travel indicated by the Higher Education and Research Bill.

Communications and public engagement

In 2016, we made major strides forward in raising NERC's profile and influence with key audiences through a range of initiatives. Our activities have been more targeted, to ensure we build support and advocacy among key audiences, and help create a position from which we can share our messages and intent, and resolve issues through discussion.

In spring 2016, our campaign to engage key stakeholders in naming our new polar research ship gained widespread, global attention. It provided a way in to build understanding and support among key stakeholders, and audiences unfamiliar with NERC and its world-leading science, for the research the ship will carry out. *Boaty McBoatface*, the Autosub Long Range submersible operated by NOC, completed its first Antarctic sortie beneath the waves of the Southern Ocean. Researchers from the University of Southampton and BAS, and NOC engineers and technicians, deployed *Boaty* in the Weddell Sea near the South Orkney Islands, in April 2017 from BAS research ship the RRS *James Clark Ross*. The sortie was part of an expedition to study some of the deepest and coldest abyssal ocean waters on Earth – known as Antarctic Bottom Water – and how they affect climate change.

In autumn 2016, we ran three ambitious, high-profile events over the period of a month to build awareness of NERC and its science, and build pride and enthusiasm in UK environmental science. Early in the month saw RRS *Discovery* visit Liverpool Waterfront. In mid-October, the RRS *Sir David Attenborough's* keel was laid at Cammell Laird, and we took the Facilities for Airborne Atmospheric Measurements aircraft to Manchester.

As a result of our activities over the past year, particularly from the *Name our Ship* campaign, we have seen greater contact from NERC-funded researchers and from our research centres. Both groups are increasingly sharing opportunities with us and have expressed a growing appetite to work with us. Unprompted mentions of NERC funding increased markedly both in mainstream media and on social media following this campaign.

Having introduced and demonstrated a clear commitment to internal communications, we have further developed NERC's identity and brand, with engagement across NERC head office and NERC's centres. Work is underway to embed this new approach with clear messaging across the organisation. Across NERC we have responded to staff survey feedback which highlighted internal communications as an area for improvement, and feedback indicates the new approach is working well.

In public engagement, we have increased our ambition and presence with a new £500k funding stream together with dedicated capacity, programme and infrastructure. We launched our first public engagement call in 2016: Engaging the UK public with the big issues of environmental science. Short, focused, pilot projects started in January 2017. Much of our activities in this area will be supported externally by reputable organisations with a high profile and strong track record in public engagement, and through future annual showcase events. We plan further public engagement calls in 2017. Early in 2017, we commissioned a survey of public attitudes, specifically towards environmental science to help inform our public engagement activities throughout the year. Looking ahead, we will convene public dialogue activities to inform and allow NERC to make decisions relevant to society.

Grants, Fellowships and studentships

In 2015 NERC implemented new demand management measures for its discovery science standard grants. These are designed to reduce the number and size of proposals from research organisations and to raise the grant success rates, ensuring research excellence, efficiency and value for money for the taxpayer. A recent review of the measures has found that success rates have risen from 10% to 20% because of a large decrease in the number of low-quality submissions. NERC will continue to monitor the impacts of demand management.

We continue to monitor the success rates of grant and fellowship applications to ensure fairness. Trend data have shown that the proportion of women applying for research grants, and their subsequent success rate, remain relatively constant. There are yearly fluctuations but success rates are not consistently better or worse for one gender. The data for 2016-17 overleaf shows a slightly reduced success rate for female applicants compared to male applicants for research grants, and a slightly better success rate for female compared to male fellowship applicants.

Although there are yearly fluctuations, on average 50% of studentships are awarded to females. 51% of current PhD students are female.

NERC continues to offer unconscious bias training to our own staff and are involved in the development of cross-Research Council unconscious bias training tool for the peer review community which will be made available soon. We will continue to review the overall effectiveness of our approaches to funding.

Discovery science grant applications and success rates

	2016-17	2015-16
Number of proposals	511	740
Number of grants	113	110
Total £k	47,301	41,320
Success rate %	22	15

Success rates for grants by gender

	Men	Women
Number of proposals	1,245	432
Number of grants	380	115
Success rate %	31	27

Success rates for fellowships by gender

	Men	Women
Number of proposals	100	45
Number of grants	8	5
Success rate %	8	11

Directly employed staff by gender as at 31 March 2017

	Men	Women
Directly employed staff	1,501	995
%	60	40

Staff, students and fellows

	2016-17	2015-16
Directly employed staff	2,496	2,505
Staff in research organisations[1]	3,501	3,002
Fellows	84	84
PhD[2]	1,346	1,310

1. Headcount of all academic and research staff named on research grants that were active at the end of the financial year.
2. PhD data is based on number of students directly funded by NERC. These do not include co-funded studentships where another funder administers the award. PhD data are recast annually to include studentships that had not previously been entered into the system, by award holders, at the time of publication. The figures for 2016/17 are higher than those for previous years; this reflects the increased numbers of co-funded studentships following the adoption of the Doctoral Training Partnership and Centre for Doctoral Training models for delivering postgraduate training and the increasing number of students being funded through these mechanisms each year as old training schemes conclude.

Science budget expenditure in research organisations (£000)

	Total
University of Leeds	19,153
University of Oxford	8,955
University of Bristol	8,025
University of Reading	7,091
University of Exeter	6,780
University of Edinburgh	6,778
University College London	6,103
Imperial College London	6,052
University of Leicester	5,619
The University of Manchester	5,522
University of Southampton GRANT	5,287
University of Cambridge	4,963
University of Birmingham	4,645
University of East Anglia	4,645
Biotechnology and Biological Sciences Research Council (BBSRC)	4,414
Lancaster University	4,180
University of Sheffield	3,748
University of Aberdeen	3,530
University of York	3,527
University of Liverpool	3,423
Science & Technology Facilities Council	2,928
Engineering & Physical Sciences Research Council	2,646
University of Newcastle Upon Tyne	2,617
University of Durham	2,558
Plymouth Marine Laboratory clg	2,407
The Scottish Association for Marine Science (SAMS Group)	2,075
Cranfield University	1,875
Bangor University	1,848
Cardiff University	1,748
University of Glasgow	1,722
Natural History Museum	1,338
Met Office	1,308
University of Plymouth	1,282
University of St Andrews	1,246
Heriot Watt University	1,200
University of Warwick	1,179
University of Hull	1,108
King's College London	904
University of Nottingham	855
Queen Mary University of London	790
University of Sussex	730
University of Bath	718
North Wyke Research	710
Royal Holloway, University of London	692
University of Essex	684
Medical Research Council	682
Aberystwyth University	660
University of Stirling	638
University of Dundee	567
University of Strathclyde	554
Other research organisations	13,472
Research Centre awards	14,338
Total	**190,519**

How we spent the science budget (£000)*

National Capability	
Large Research Infrastructure	
Facility for Airborne Atmospheric Measurement	3,527
National Marine Facilities	13,968
Services, Facilities & Data	18,108
National Public Good	10,341
Long Term Science	33,321
Long Term Science Multidiscplinary	6,723
International Subscriptions	
International Institute for Applied Systems Analysis	591
Integrated Ocean Drilling Programme	2,600
Other Subscriptions	378
NERC Corporate Activities	4,497
Sub-total	**94,054**

National Capability – Antarctic Logistics and Infrastructure (ALI)	
Large Research Infrastructure	30,779
National Public Good	1,425
Long Term Science	454
Sub-total	**32,658**

Discovery Science	
International Grants	1,466
Standard Grants	40,228
Large Grants	8,798
Other Funding Activities	1,969
Sub-total	**52,461**

Strategic Research	
1.5°C Pathways and Impacts	300
Analytical Science & Technology PhD Studentships	109
Arctic Ocean	1,061
Arctic Programme	626
Atmospheric Pollution & Human Health in a Chinese Mega-City	713
Atmospheric Pollution and Human Health in an Indian Mega-City	201
Biodiversity & Ecosystem Service Sustainability	885
Biosphere Evolution, Transitions and Resilience	227
Building Resilience in Developing Countries	1,760
Carbon Capture & Storage	756
Changing Water Cycle	175
Coastal Morphology	1,044
Drivers of Variability in Atmospheric Circulation	768
Ecology of Infectious Diseases	1,182
El Nino	1,235
Environmental DNA	800
Environmental Microbiology and Human Health	1,645
Environmental Nanomaterials	845
ESM Strategy implementation	126
Evolutionary Biotic Response	1,154
Flooding from intense rainfall	1,827
Freshwater Ecosystems	780
Greenhouse Gas Emissions	1,257
Human modified Tropical forests	1,920
Ice Sheet Stability	745
AMR in the Environment	1,017
Aquaculture	308
Climate Predictability and Inter - Regional Linkages	457
Future Climate for Africa	955
Resilience of the UK food system in a global context	900
Science for Humanitarian Emergencies and Resilience (SHEAR)	196
Understanding Atmospheric Convection across Scales	781
Macronutrient Cycles	198
Marine Ecosystems	2,355
Mathematics and Informatics for 'omics	889
Methane Budget	988
Mineral Resources	2,029
Natural Hazards	1,049
Next Generation unmanned aerial vehicles	105
Ocean Acidification	230
Ocean Shelf-Edge Exchange	243
ODA CZO (Sustaining Soils)	294
ODA India Water Resources	110
Pollutant Exposures & Human Health	337
Probability, Uncertainty, Risk	139
Radioactivity and the Environment	1,351
RAPID-AMOC (Atlantic Meridional Overturning Circulation)	1,664
Resource recovery from Waste	1,689
Shelf Seas Biogeochemistry	1,679
Soil Security	1,792
South Asian Monsoon	873
Strategic Research Development Fund	339
Technologies Proof of Concept Phase 2	1,990
Tree Health	598
Trends in Surface Temperature	806
UK Droughts	897
UK IODP Phase 3	918
UKERC III	460

Valuing Nature	1,113
Volatiles, Geodynamics and Solid Earth Controls on the Habitable Planet	1,852
Other Funding Activities	2,567
Sub-total	**56,309**
Post Graduate Training	
Doctoral Training Grants	4,881
Doctoral Training Partnerships	13,941
Centres for Doctoral Training	1,549
CASE Studentships	2,582
Advanced Skills Training	1,273
Other Funding Activities	656
Sub-total	**24,882**
Fellowships	
Fellowships	6,898
Innovation	
Enabling Research Organisations	3,057
Innovation Programmes	9,508
Other Funding Activities	6,132
Sub-total	**18,697**
Public Engagement	**714**
Enabling Change	**4,423**
Administration costs	**12,279**
Non-Cash	
Depreciation	40,778
Amortisation	670
Impairments	7,768
Foreign Exchange Gains	-1,087
Sub-total	**48,129**
Capital Grants	**7,619**

Capital Income	
Antarctic Logistics and Infrastructure Partition	-1,080
Capital income - NERC other	-3,292
Sub-total	**-4,372**
Capital	
Antarctic Logistics and Infrastructure	
Partition	4,508
RRS *Sir David Attenborough* and Associated Projects	42,841
Halley VI Relocation	1,105
Equipment, well found labs, Research Centres,	23,473
Asset Disposals	-5,624
Sub-Total	**66,303**
TOTAL NERC EXPENDITURE	**421,055**
Comprises:	
Resource **	354,752
Capital	66,303
Total	**421,055**

Notes

* This table shows how NERC has spent the BEIS science allocation. All figures are net of other income received.

** Resource figure differs from the net expenditure for the year by £26,531k, which is broken down as follows:

	£000
Other funding received from BEIS recorded as financing	16,265
AME impairments and impairment reversals	6,105
AME change in provisions	4,161
	26,531

How we spent the science budget by Centre (£000)*

	ALI	BAS	BGS	CEH	NOC	NCAS	NCEO	Total
Resource	31,578	6,498	21,287	15,575	26,949	9,143	4,188	115,218
Capital	48,454	6,129	3,765	1,893	11,584	-	-	71,825
Total	**80,032**	**12,627**	**25,052**	**17,468**	**38,533**	**9,143**	**4,188**	**187,043**

* This table shows how much of the BEIS science allocation has been spent directly by the NERC Centres. All figures are net of other income received.

Sustainability Report

Overview

NERC is based in Swindon and operates four research centres located across the UK, all of which have multiple sites. NERC also operates research bases in Antarctica and the Arctic, works around the globe in many diverse locations and runs the UK fleet of research ships and research aircraft. NERC strives to minimise the adverse impact of its research on the environment but our research is also critical in helping establish the scientific basis of climate change and investigating other vital environmental issues. NERC balances the environmental impact of its work against the environmental value generated by addressing environmental issues and climate change without unnecessarily inhibiting its valuable contribution to global wellbeing.

Summary of performance in 2016-17

In 2016-17 NERC further improved the environmental performance of its UK activities and reduced its carbon emissions by the equivalent of 1,365 tonnes of CO_2, an 11% reduction over 2015-16. This reduction in greenhouse gas emissions was composed of a decrease in energy consumption in the UK estate of 4%, a 2% reduction due to the closure of Murchison House and Loanhead, an increase in UK business travel related and other emissions of 2% and a reduction due to changes in conversion factors of 7%. There was also a reduction of 22% in water consumed and 18% in total waste produced.

Progress towards 2019-20 targets

NERC has set the following sustainability targets for achievement over the five year period to 2019-20 against the 2014-15 baseline:

- Energy usage on the UK estate – a reduction of at least 10%
- Water usage on the UK estate – a reduction of at least 10%
- Business travel including fleet vehicles, hire vehicles, 'grey' fleet (staff using their own vehicles on NERC business), public transport (train, bus and taxi) – a reduction of at least 10% in travel excluding flights
- Waste from UK estate – reduce proportion of waste going to landfill to 5% of total waste tonnage and increase proportion of waste sent for recycling (and re-use) to 60% of total produced.

NERC progress towards these five year targets in the first two years is:

- 17% reduction in greenhouse gas emissions (which is already in excess of that required by NERC to meet the 2020 Greening Government Commitment on this measure) of which 11% is due to advantageous changes in carbon conversion factors
- 6% reduction in energy usage on the UK estate
- 21% reduction in water consumption
- 47% reduction in number of domestic flights
- Greenhouse gas emissions from UK travel excluding flights show a small reduction of 0.5%
- 26% reduction in overall waste generation with the proportion going to landfill in 2016-17 at 18% and the proportion recycled at 60%.

Governance and certification

The NERC Chief Operating Officer has board level responsibility for environmental management. As part of demonstrating its commitment to managing environmental impacts NERC has held the Carbon Trust Standard since 2010 and the current certification runs until April 2018. All NERC Research Centres hold certification to

the ISO 14001 Standard for Environmental Management and NERC participates in the Government Carbon Reduction Commitment Energy Efficiency Scheme. As part of the Greening Government Commitment (which was renewed last year) NERC reports its sustainability performance quarterly to BEIS.

Investment in sustainability

NERC continues to invest in new buildings and technologies to reduce energy usage, which has made a significant contribution towards meeting our target. Recent examples of NERC's continued investment to improve our environmental performance include:

- Air source heat pump for new naturally occurring radioactive sample store at BGS Keyworth
- Installation of 50kw solar electricity generating array on the Maclean Building at CEH Wallingford
- New inverter controlled pumps for hot water circulation at NOC Southampton
- Construction of the Aurora Innovation Centre at BAS Cambridge to BREEAM 'Very Good' standard.

Area		2016-17	2015-16	2014-15
Greenhouse gas emissions (scopes 1, 2 and 3) (tCO_2e)[1]		10,907	12,272	13,094
Energy	Consumption (in million kWh)[2]	31.7	33.7	33.8
	Expenditure (£m)	2.3	2.2	2.4
Travel	Generation (tCO_2e)	949	827	917
	Expenditure UK business travel (£m)	2.2	2.0	2.1
Waste	Generation (tonnes)[3]	429	522	579
	Expenditure (£k)	255	357	287
Water [4]	Consumption – whole estate (m^3)	35,598	45,667	45,346
	Expenditure (£k)	106	134	137

Notes:
1. Greenhouse gas emissions include direct (scope 1) and indirect (scope 2) emissions from UK buildings and business related transport (scope 3). Emissions from ships, airplanes and overseas travel are not included.
2. Energy consumption Includes gas consumption of 16.0 kWh (scope 1) and electricity consumption of 15.4 kWh (scope 2).
3. Waste generation consists of 257 tonnes reused/recycled waste, 78 tonnes of landfill, 76 tonnes of incinerated/energy from waste and 18 tonnes of hazardous waste.
4. Consists of water consumption for the whole UK – predominantly specialist non-office – estate.

Professor Duncan Wingham
Chief Executive and Accounting Officer
21 June 2017

Accountability Report

Corporate Governance Report

Directors Report

Statutory disclosures
In accordance with the Companies Act 2006, the following statutory disclosures are presented for the accounting period 2016-17:

Pensions
NERC's pension schemes are discussed in in the Remuneration and Staff Report.

Directors, governance and risk
Full details of NERC directors, management board, governance and risk are included in the Remuneration and Staff Report and Governance Statement within the Annual Accounts. The NERC policy on risk is disclosed in Accounting Policy 1.6 Financial Instruments.

Significant interests
Potentially relevant significant interests of NERC's Council members where they are affiliated to other organisations are presented in the Remuneration and Staff Report to the main accounts and in Note 13 to the Annual Accounts. No issues regarding conflict with their managerial responsibilities have materialised. NERC's Council Secretariat manages a Register of Interests which is available on NERC's website **www.nerc.ac.uk/about/organisation/boards/council/membership/interests-register/**

Overseas operations
NERC itself has no branches outside the UK, although its research centre BAS operates several bases in the Antarctic and one in the Arctic.

Auditors
NERC's accounts are audited by the Comptroller and Auditor General who has been appointed under statute and is responsible to Parliament. The cost of the statutory audit was £80,000. No remuneration was paid to the external auditors in respect of non-audit work in 2016-17. Independent internal audit was provided by the Audit and Assurance Services Group for the first six months and thereafter by the Government Internal Audit Service. The total cost of internal audits undertaken during 2016-17 was £212k. No remuneration was paid to the internal auditors in respect of non-audit work during 2016-17.

Public Sector Information
NERC has complied with the cost allocation and charging requirements set out in HM Treasury and Public Sector Information guidance, but is exempt from the requirements of The Re-use of Public Sector Information Regulations 2005.

Payment policy
NERC observes the Confederation of British Industry Code of Practice regarding prompt payment, and in accordance with the Government direction, is committed to paying its suppliers within five days of receipt of a valid invoice or earlier if suppliers terms dictate. During 2016-17, 77.6% of payments were made within five working days (79.7% 2015-16) and 97.5% within 30 days (98.1% 2015-16). In accordance with the guidance of the Statutory Instrument 1997/571, trade creditor days for the period are 29 days (re-presented 2015-16: 24 days).

Information assurance and security
The government's Security Policy Framework requires departments to submit an annual health check report to Cabinet Office. NERC has put in place policies and procedures to manage information risk, and reports annually on information security. Raising staff awareness of data protection obligations and rights has continued during 2016-17, with awareness sessions rolled out to all staff at the Research Centres. Regular six-monthly reports on cyber security and information assurance are provided to the NERC Audit & Risk Assurance Committee. Roll out of refresher training responsible for information e-learning training for all staff is currently in progress. The number of personal data loss incidents is recorded and in 2016-17 there was one such incident. This was responded to promptly in line with our information security incident response procedure and steps have been taken to reduce the risk of similar incidents happening in future. The Information Commissioner's Office and the individuals affected were notified of the data loss. The Information Commissioner's Office decided that no further action was necessary.

Openness and transparency
NERC is subject to the Freedom of Information Act 2000 and the Environmental Information Regulations 2004. During 2016 we answered 52 requests for information specifically under the legislation. The requests covered a broad variety of subjects, from research policy and operations to contracts. We answered all requests, some of which were complex and wide ranging, within the statutory time limits. Much of our information is readily available without making a Freedom of Information Act request. For details see our publication scheme at: **www.nerc.ac.uk/about/policy/foi/publication/**

Categories of requests made under the Freedom of Information Act/Environmental Information Regulations in 2016.

Research policy and operations	22
Contracts	2
Business policy and operations	26
Research outputs	0
Funding applications	0
Personal information	2

Health and safety
During 2016-17 there was one reportable event within NERC's UK operations under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013, as in the previous year. This is the lowest number of RIDDOR reportable events recorded in the last 19 years. There were four Marine Accident Investigation Board (MAIB) reportable events compared to two in the previous year. In addition, there were three other serious occurrences overseas. The total number of injuries and work-related ill health reported to staff within NERC and its closely associated research institutes which follow our safety management system in 2016-17 was 228, almost identical to the 226 reported in 2015-16.

The RIDDOR reportable event was an over-seven-day lost time injury due to a severe skin irritation through contact with a biological washing powder used to digest samples. There were three non-RIDDOR lost time injuries in 2016-17 leading to one to three days off work compared to three in 2015-16. There were

no lost time recordable injuries of between four and seven days off work as was also the case the previous year. The three serious occurrences overseas were: a fall whilst working in a remote jungle leading to multiple injuries requiring emergency evacuation and surgery; a work related ill health case of non-freezing cold injury to the feet and a broken knee when tripping over a cable.

Of the four occurrences reportable to the MAIB under maritime law there were three over-three-day lost time injuries, two involving lifting and handling injuries and the third a damaged ankle from a trip. The fourth occurrence was the failure of a lifeboat winch when under test.

The legal requirements for health and safety and radiation protection in NERC are subject to scrutiny by a number of regulatory authorities. The Health and Safety Executive look after health and safety for land-based UK activities. The Environment Agency has responsibility for certain aspects of work with radioactive materials in the UK. The Maritime and Coastguard Agency regulate our work on ships. The Civil Aviation Authority and their subsidiary Air Safety Support International look after safety on our aircraft in the UK and overseas. The Office for Nuclear Regulation (ONR) has responsibility for the transport of radioactive material goods within the UK. This year the ONR inspected NERC for the first time and visited CEH Wallingford to assess compliance with the requirements for transport of radioactive material under ADR (International Carriage Dangerous Goods by Road). They made a number of observations on statutory requirements for which evidence of compliance was provided within two weeks.

In 2016-17 the most frequent type of injury or work-related ill health was slips, trips and falls on same level. Two types of injury were equal as the second most common type of injury or work-related ill health: hit by a moving, flying or falling object and cut or stabbed with a sharp object. The fourth most common type of injury or work related ill health seen in 2016-17 was injured whilst lifting and handling.

The 2016-17 NERC corporate health and safety audit programme examined work pressure management across NERC and was undertaken with the assistance of Acas. The audit outcome reassured NERC that its approach and support to managing stress within the workplace was acceptable with only limited scope for improvement.

The 361 reported incidents and near misses reported show the major cause of potential harm within NERC in 2016-17 was workplace conditions or faults, with use of ships or boats second, equipment faults third and use of road vehicles or land based transport a close fourth.

Overall the accident and incident or near miss statistics show a positive approach to health and safety and continue to demonstrate the beneficial effect of electronic systems on reporting. There was a continued increase in the ratio between incidents or near misses to injuries or work-related ill health, an indicator of good health and safety culture, for the fifth successive year.

In 2016-17 the NERC RIDDOR injury rate per 1000 employees was 0.42. This compares with the HSE's average RIDDOR reportable injury rate per 1000 employees across all UK of 2.74 in 2015-16 (the last year for which national statistics are published). The HSE also publish sector RIDDOR injury frequency rates, the most comparable to NERC's work being for scientific R&D and other professional scientific and technical activities, for which the figures were 0.47 and 0.57 per 1000 employees respectively.

Statement of Chief Executive's Responsibilities with Respect to the Financial Statements

Under Paragraph 3 of Schedule 1 to the Science and Technology Act 1965, the Secretary of State for the Department for Business, Energy and Industrial Strategy has directed the Council to prepare for each financial year a statement of accounts in the form and on the basis set out in the Accounts Direction. The accounts are prepared on an accruals basis and must give a true and fair view of the state of affairs of the Natural Environment Research Council and of its comprehensive net expenditure, taxpayer's equity and cash flows for the financial year.

In preparing the accounts the Chief Executive as the Accounting Officer is required to comply with the requirements of the Government Financial Reporting Manual and in particular to:

- observe the Accounts Direction issued by the Department for Business, Energy and Industrial Strategy, including relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis;

- make judgements and estimates on a reasonable basis;

- state whether applicable accounting standards as set out in the Government Financial Reporting Manual have been followed, and disclose and explain any material departures in the financial statements; and

- prepare the financial statements on a going concern basis.

The Department for Business, Energy and Industrial Strategy has appointed the Chief Executive as Accounting Officer of the Natural Environment Research Council. The responsibilities of an Accounting Officer, including responsibility for the propriety and regularity of the public finances for which the Accounting Officer is answerable, for keeping of proper records and for safeguarding the Natural Environment Research Council's assets, are set out in 'Managing Public Money' published by HM Treasury.

The Accounting Officer has taken all reasonable steps to ensure that he is aware of any relevant audit information and to ensure that the Council's auditors are aware of that information. As far as the Accounting Officer is aware, there is no relevant audit information of which the Council's auditors are unaware.

The Accounting Officer has taken all reasonable steps to ensure that the annual report and accounts as a whole is fair, balanced and understandable and has taken personal responsibility for the annual report and accounts and the judgements required for determining that it is fair, balanced and understandable.

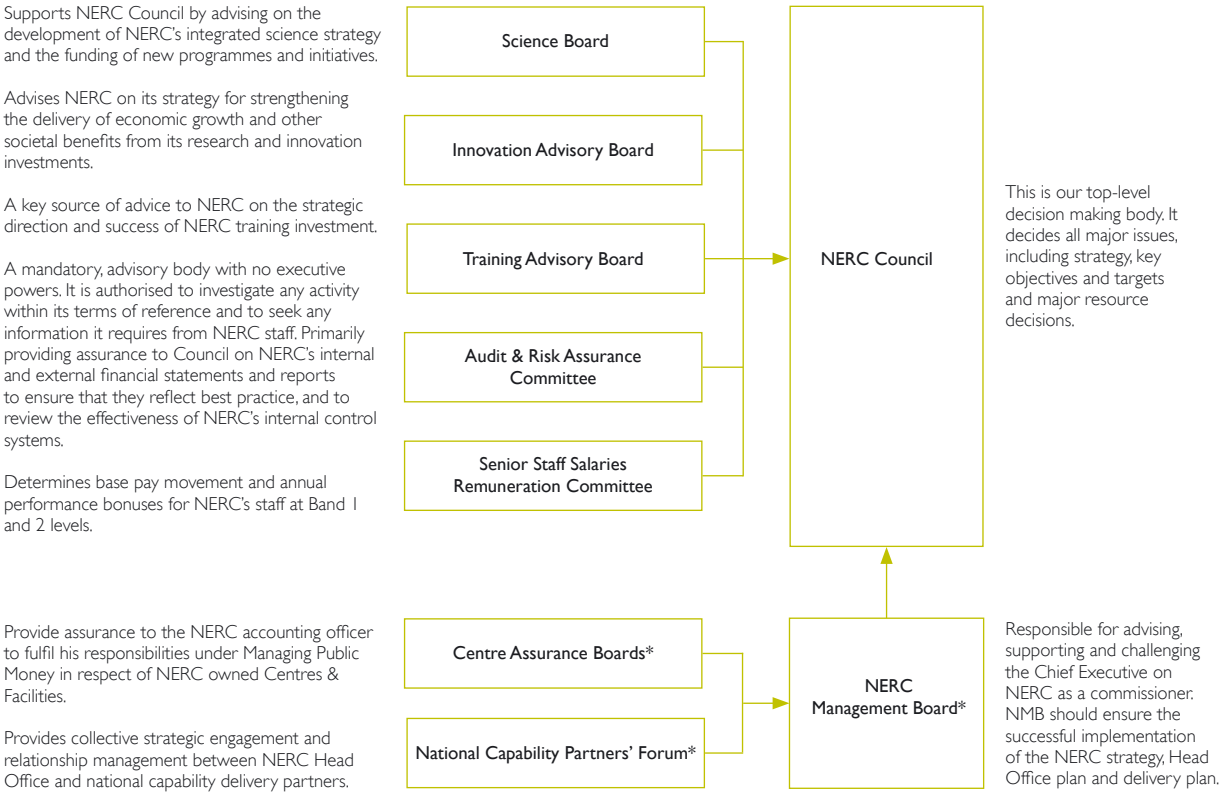
Governance Statement

Introduction

As Accounting Officer, I have responsibility for acting within the authority delegated to me by our sponsor department, The Department for Business, Energy & Industrial Strategy (BEIS), to ensure that NERC operates effectively and with a high standard of propriety. NERC has established a robust governance framework that supports effective decision-making and sound financial management, which in turn, enables the achievement of NERC's policies, aims and objectives.

This governance statement sets out the governance, risk and internal control arrangements for NERC. It applies to the financial year 1 April 2016 to the 31 March 2017 and the approval of the Annual Report and Accounts, and accords with HM Treasury guidance.

NERC Governance Framework



**Established in September 2016 to replace the NERC Executive Board*

The design of the NERC's governance framework enables us to efficiently run an organisation that funds excellent, peer-reviewed environmental science that helps us understand and predict how the planet works, while acting in the public interest at all times in accordance with the 7 Principles of Public Life.

In 2016-17, NERC Council agreed some revisions to our governance framework. The revised structure meets the need to deliver management of NERC as a commissioner of environmental science, including its national capability requirements through three bodies: the NERC Management Board (NMB), the National Capability Partners' Forum (NCPF) and the Centre Assurance Boards (CABs). Further details can be found in the key governance activities section.

The introduction of the CABs provides assurance to the Accounting Officer in the long-term interdependent nature of our relationship with the Research Centres and fulfils NERC's obligations under Managing Public Money to address issues relating to finance, risk, HR and health and safety. The NCPF focusses on supporting the strategic relationship between NERC and our National Capability delivery partners. This means that NMB can now solely focus on advising, supporting and challenging the Chief Executive to ensure NERC makes objective and balanced funding decisions across the entire portfolio in our role as the leading public funder of environmental science.

Council, Audit and Risk Assurance Committee and Senior Staff Salaries Remuneration Committee

Council and its sub-committees use a range of management information to monitor the performance of NERC, including data on finances, human resources, performance indicators and operations.

During the year, Council met five times and provided strategic input and advice on a range of NERC priorities. Topics discussed in 2016-17 included:

- Planning for spending review period 2016-20
- Relocation of the Halley VI Antarctic research station
- Governance, Responsibility and Ownership (GRO) programme
- Global Challenges Research Fund (GCRF)
- NERC Executive governance changes
- Managing the transition to UKRI
- New polar research vessel
- Funding for strategic programmes
- Marine National Capability
- UK Geo-Energy Observatories (UKGEOS)
- Public engagement
- Environmental management
- Review of demand management
- Commissioning national capability services and facilities

NERC Council agendas and meeting summaries are published here:
www.nerc.ac.uk/about/organisation/boards/council/meetings/

NERC Council is supported in its work by the Audit and Risk Assurance Committee (ARAC). During the year, ARAC met four times providing assurance on the quality of NERC's consolidated accounts, audit arrangements, governance structures and risk management. NERC Council receive regular updates from ARAC and has considered ARAC's Annual Report. ARAC has completed a number of deep-dive exercises, specifically into NERC's control environment and the complex health & safety requirements of operating ships, aircraft and Antarctic bases.

NERC appoints board members and non-executive directors through a process of fair and open competition in line with the guidelines of the Office of the Commissioner for Public Affairs. NERC advertises positions centrally through the Cabinet Office Public Appointments website. In 2016-17, NERC introduced an improved process to identify and capture changes in circumstances of Board members.

Council and committee members are required to declare any personal or business interest which may, or may be reasonably perceived (by a member of the public) to,

influence their judgement in performing their functions and obligations. NERC holds a register of interests to record these declarations. The minutes record if a Council or committee member declares a potential conflict at meetings.

The Audit and Risk Assurance Committee (ARAC) and the Senior Staff Salaries Remuneration Committee (SSSRC) support Council in its work. During the year, ARAC scrutinised key aspects of finance and risk across NERC provided assurance on the quality of NERC's consolidated accounts, audit arrangements, governance structures and risk management arrangements. Council receives regular updates from ARAC.

The SSSRC met once in October 2016 to review the base pay movement and annual performance bonuses for NERC's staff at Band 1 and 2 levels.

Details of membership and terms of reference for these committees can be found at: **www.nerc.ac.uk/about/organisation/boards/**

Board and Committee attendance for the financial year 1 April 2016 to 31 March 2017

	Meeting attendance per board member of meetings eligible to attend		
Board Member	Council	ARAC	SSSRC
Sir Anthony Cleaver *	5/5		1/1
Professor Dame Georgina Mace DBE	4/5		
Professor Dame Julia Slingo DBE	3/4		
Lord Willis of Knaresborough	5/5		
Professor Louise Heathwaite	5/5		
Mr Nick Folland **	5/5	4/4	1/1
Mr Ian Simm	5/5		
Ms Christine Tacon CBE	3/5		1/1
Professor Ian Poll OBE ***	5/5	3/4	
Ms Juliet Davenport OBE	2/5		
Ms Leslie Heasman CBE	4/5		
Mr Imran Khan	4/5		
Professor Guy Orpen	5/5		
Professor Lesley Yellowlees	5/5		
Professor Paul Monks		3/4	
Mr Steve Turner		3/3	
Mr Richard Gledhill		4/4	
Professor Duncan Wingham	5/5	3/4	1/1
Mr Paul Fox		4/4	1/1
Mr Nigel Sully			1/1

Council Members
Independent Member
Management

Notes:
* NERC Chairman
**Chair of ARAC
***Also ARAC member

Council & ARAC performance and effectiveness

In December 2016, Sir Anthony Cleaver began the annual appraisal of Board members process to complement the self-assessment of Council performance. The self-assessment exercise will further the work originally completed during the external review of Council in 2015. Sir Anthony summarised the self-assessment and appraisals during the Chair's briefing session on the 2 March 2017 at Council. Council has drafted an action plan to address all identified issues.

In December 2016, NAO facilitated a self-assessment of ARAC performance against best practice. This assessment considered the role of the audit committee, membership, independence, objectivity and understanding, skills, scope of work and communication. In February 2017, ARAC discussed the action plan proposed by the NAO and will complete this during 2017-18. The outcome of this review confirmed that the ARAC is effective and operating in line with current requirements and good practice.

I am satisfied that NERC Council, ARAC and the SSSRC have the appropriate balance of skills, experience, independence and knowledge of NERC to enable them to discharge their responsibilities effectively.

Approach to risk management

Being the UK's leading public funder of environmental science, spending money economically, efficient and effectively, whilst also safeguarding, accounting for it, requires a robust approach to risk management. NERC actively manages risks that may affect our ability to deliver its strategy, as well as those risks that may arise in the delivery of the strategy. All staff have the responsibility to identify and take action to manage risks. NERC assesses its risks in four key areas: Purpose, Resource, People and Reputation. The NERC Management Board reviews risks identified as being outside of the organisation's tolerance in any of these key areas.

The discussion of risk registers is encouraged at departmental meetings with the escalation of risks, where appropriate, to management. The NERC Management Board reviews and updates our top-level risk register on a monthly basis and NERC conducts a review of Research Centre risk registers as part of the CAB meetings. NERC shares the top-level risks with Council, ARAC and BEIS, as part of their quarterly assessment of Partner Organisations and feedback from these reviews is fed back into the risk management process.

In 2016-17, NERC implemented a new risk management strategy to bring NERC in line with HM Treasury best practice. During the implementation, NERC ran a number of workshops and training sessions with individual teams. These workshops included horizon scanning to identify new risks, and emphasised the importance of sharing good practice. These workshops have helped to embed the new strategy and NERC plans to build on this work in 2017-18.

NERC also introduced a new approach to capturing reputational risks or issues to ensure these are proactively managed and that the right people across NERC and its partner organisations (e.g. BEIS) have effective early sight and input where relevant to reputation issues.

In May 2016, with Council agreement, NERC launched its first Corporate Responsibility Statement 'Responsible Business' on the NERC website. The aim was to implement a corporate responsibility approach to demonstrate our responsible management across the breadth of NERC activity and to build confidence with our stakeholders, including our staff, of our approach and commitment in this area. Council receives reports on a six-monthly basis.

Significant risks and issues in 2016-17

Brexit

Withdrawal from the EU may result in some long-term risks to NERC, including in relation to EU funding and the recruitment of staff and students. The science of the environment is global, and as such, NERC has many global collaborations, the majority of which sit outside of the EU. NERC does not underestimate the contribution EU funding makes to our research; we continue to monitor the impact losing this funding will have on our Centres. NERC also needs to understand the impact of decisions affecting immigration, post Brexit, on our current EU staff and students as well as the future impact this will have on attracting and maintaining excellent scientists from around the world.

NERC has been involved in valuable work with the other Research Councils to advise the Government about key risks and mitigations, and encouraging the engagement of international science.

Machinery of Government changes

In 2016 the department for Business, Innovation and Skills (BIS) merged with the Department of Energy and Climate Change (DECC) to become BEIS, bringing with it a new Director General and management team. The changes at BEIS have provided an opportunity to review the many change initiatives that had begun under BIS.

Global Challenges Research Fund

The nature of scientific funding in the UK is changing, with the Global Challenges Research Fund (GCRF) and the Official Development Assistance (ODA) fund. To successfully meet the challenges of these new funding streams will require a new preparedness in the scientific community to think of broader scientific collaborations to respond to the opportunities. It has been very heartening to see the strength of the NERC community responses to the NERC, ESRC and AHRC joint call on 'Building Resilience', and the 'Capacity Building' call of the central GCRF funds; NERC will need to respond in a similar fashion to the new Industrial Strategy Challenge Fund. In respect to GCRF, a number of processes have been put in place to ensure compliance with the rules that govern this funding and NERC is, again, working collaboratively with the other Research Councils to increase the robustness of our overseas funding processes.

Higher Education Research Act 2017

The ability of NERC to continue to deliver its aims and objectives must be seen in the context of the wider change agenda faced by all Research Councils, with the most significant of these being the impact of the Higher Education Research Act 2017. The anticipated creation of UK Research and Innovation will present significant governance challenges to all of the Research Councils and the risk remains that uncertainty may affect staff and place additional demands on resource. This may in turn make it more difficult to maintain "business as usual" in the transition leading to the new structure unless mitigations are in place. NERC is fully engaged in the UK Research and Innovation Transition Programme at both strategic and operational levels and are working collaboratively with BEIS to identify and actively mitigate any risks.

Equality and diversity

In 2016, NERC undertook an Equal Pay Audit of its Band 3-9 pay system. As well as being good practice to carry out such an audit at regular intervals, it was also helpful in light of the gender pay reporting requirements, which are to become law in 2017.

The audit looked for statistical evidence of differences associated with gender and ethnicity, total pay (FTE salary plus allowances), basic pay (FTE salary) and allowances as at 29 February 2016. The audit also looked at bonus payments made in the 12-month period up to that date. The findings from these examinations highlighted that there were statistically significant differences by gender.

In response to these finding NERC has taken the following steps:
- Agreed an action plan to address the findings of the audit.
- Shared the key findings from the audit and action plan with staff, ARAC and Trade Unions.
- Submitted a pay remit to BEIS taking account of the pay-related costs of the proposals in the action plan.

Governance, Responsibilities and Ownership Programme
Our aim continues to be to protect our Centres' world-class science while providing greater freedom and flexibility, enabling them to diversify their sources of funding and to continue to attract renowned scientists, without increasing the risk to NERC. Following discussions with BEIS last autumn, and consideration by Jo Johnson, the Minister for Universities, Science and Innovation, we will take the next step in considering the transfer of CEH and NOC to independent status. A decision about the future independence of BGS will be considered by UKRI once it is formed. During the interim, work will be undertaken and completed to put in place arrangements between NERC and BGS that reflect more clearly its role of providing geological services to the UK.

Reputation
NERC's strategy outlines our commitment to working with partners – including business – to provide them with independent, high-quality scientific evidence to inform decision-making. This includes contracted research, where all research outputs are open to peer-reviewed scientific publication in the usual way. This research can often result in NERC having to manage additional reputational risk around the science these contracts produce, which make it even more vital that these outputs are subject to the peer-review process.

When dealing with businesses that operate in contested areas, such as the oil and gas or farming industry, NERC must ensure it responds as an objective and responsible source to the needs generated by these industries, and not get involved in policy, seeing its role as providing objective, science based data and research. Whenever NERC engages with any potentially controversial areas of work, such as CEH's work with Syngenta on the effects of Neonicotinoids on bees, or the UK Geo-Energy Observatories (UKGEOS) project, NERC is careful to position itself thoughtfully, defining its role as determining the environmental impacts and promoting responsible management of the environment. NERC has been working closely with BBSRC on public engagement as they were widely congratulated for their work regarding GM experiment.

Halley VI
On-going changes to the ice in the Antarctic, particularly the discovery of two ice chasms which are getting bigger, present a complex glaciological picture. During 2016-17, BAS were able to relocate Halley VI by 23km to mitigate the risk posed by one of these ice cracks. However, as BAS scientists were unable to predict with certainty what would happen to the ice shelf during the Antarctic winter, as a further precautionary measure, BAS removed its people before the Antarctic winter began. There was no immediate risk to the people at the station, or to the station itself, however, the level of uncertainty in what could happen to the ice during the winter was enough for BAS to change its operational plans. NERC has made every effort to ensure the continuity of long-term scientific data capture in these circumstances.

Key governance activities

NERC Management Board

Between April and July 2016, the NERC Executive Board (NEB) met to discuss a number of topics including;

- NERC's top risk register
- Corporate responsibility
- National capability commissioning
- Future governance arrangements
- The challenges around the Newton Fund and GCRF,
- The environmental management of NERC's ships and planes
- Public engagement.

In September 2016, the NERC Management Board (NMB) replaced NEB, where topics discussed included:

- The top risk register
- Oracle and grants replacement systems
- Research integrity
- The evaluation of services & facilities
- Reputation management

Both these bodies examined, specific, high risk issues at monthly meetings to ensure that the management of NERC is in accordance with the required standards of accountability, regularity and propriety, achieving high standards of efficiency, effectiveness, economy and health and safety.

Centre Assurance Boards

Every six months I meet formally with each Research Centre Director during the CAB meetings. These meetings allow me, and my executive team, to examine their Research Centre Activity and Resource Plans (CARP), their top-level risk registers and assurance maps, their Health & Safety performance and any issues the Centres raise for discussion.

As part of the CARP process, I ask the Directors to document and explain their financial plans, business activity and workforce development plans for the next three years. The examination provides assurance concerning financial planning, alignment with NERC strategy and the effectiveness of internal control within their areas of responsibility.

The 2016-17 meetings provided assurance to myself and my executive team in the following areas:

- The robustness of the health and safety arrangements (particularly at NCAS regarding our aircraft facilities)
- The Centre's top-level risks were being appropriately managed
- Evidence based budgets have been set
- The existence of well-managed capital and workforce plans

National Capability Partner's Forum

The forum provides collective strategic engagement and relationship management between NERC Head Office and national capability delivery partners. The forum met formally in November 2016 and March 2017. The key issues discussed were National Capability science funding, environmental data service and provided input towards NERC's consultation into the government's Modern Industrial Strategy Green Paper.

Antarctic operations
The UK has operated a science presence in the Antarctic for over 60 years. The government exercises oversight of this activity via a joint committee, chaired by BEIS but containing representation from NERC/BAS, the FCO, MOD and Cabinet Office.

Since 2015, NERC has received a separate funding line (within the science budget) from BEIS in respect of costs of Antarctic infrastructure and logistics, so that this is tensioned against other science budget priorities by BEIS, rather than by NERC.

In 2016, recognising the inherent risk of operating in Antarctica, I established the NERC/BAS Operations and Safety Assurance & Advisory Group to provide me with independent advice and assurance on Antarctic operations and safety.

Regularity and propriety
NERC is committed to establishing and applying appropriate regularity and propriety standards. This includes developing and maintaining appropriate cultures and behaviours; NERC does not tolerate any form of fraud, bribery and/or corruption. The key policies are:
- NERC Fraud Policy
- NERC Gifts and Hospitality Policy
- Research Council Whistleblowing Policy
- Research Council Code of Conduct Policy

Senior management and staff who manage budgets or procure on behalf of NERC received Maintaining Organisational Controls training in 2016-17, thus ensuring that there is an awareness of their responsibilities to operate within the various policies, Cabinet Office controls and other guidance. During 2017-18, NERC will roll out this training to remaining staff.

NERC operate a system of both preventative and retrospective controls to provide assurance to the adherence of policies and controls and that our accounting data accurately reflects business activity. NERC widened this control environment in 2016-17 to include regular monitoring of the NERC pay bill to allow compliance with Civil Service Pay Guidance.

During the year, there was one case of low level fraud identified and reported to ARAC. Actions were taken to investigate and the results have been reported to ARAC.

Research grant funding assurance
Across the Research Councils UK (RCUK) community research funding totals £2.9Bn of which £191m relates to grants issued by NERC. The funding landscape has two major funding streams: 1. Grants administered through the Siebel system (NERC £148m) and awarded to eligible Research Organisations (ROs);
2. Funding distributed outside the Siebel system (NERC £43m) including strategic partnerships.

During the year a Funding Assurance Working Group (FAWG) was set up to review the framework and a revised Integrated Funding Assurance (IFA) has been implemented. This framework is predicated on establishing appropriate accountability within the Research Organisation in receipt of funding and collating assurance from a range of sources.

Siebel grants

The assurance provided through this framework indicates a very low level of current and historic errors for all Councils. In particular in his report the Head of Funding Assurance provides Moderate Assurance based upon the programme of work undertaken.

Going forward, through ODA, GCRF and Newton Fund grants to overseas organisations will increase and they have the potential to become a significant part of all the Research Council's expenditure. A FAWG sub-group is reviewing all aspects of international funding and sub-contracting.

In December 2016, the Cabinet Office launched a set of Minimum Grant Standards to promote effective grant making, with 2017 being viewed as a pilot year for embedding these. The research councils have mapped the Cabinet Office standards against current policies and procedures and have demonstrated through this assurance framework that we can clearly evidence our compliance.

Non-Siebel awards/funding

Strategic partnerships represent the major part of NERC's non-Siebel funding to third parties. Major components include:

- Contract funding to HEIs of £15.4m. This includes £9.1m to University of Leeds for NCAS and £4.2m to University of Leicester for NCEO.
- Contract funding to non-HEIs of £13m. This includes £10.8m to other Research Councils.
- Contract funding awarded by NERC Research Centres of £12.2m. This includes funding awarded to marine delivery partners and services and facilities run by Centres.

Funding is awarded under contract. The contract route is used to provide an increased level of assurance over key research activity.

I take assurance on these activities primarily through the governance frameworks in place, including:

- The CAB provides a forum to review the comprehensiveness and reliability of assurances on governance, risk management, the control environment and financial statements. The scope of the CAB encompasses all of my assurance needs for funding these Centres
- Representative roles within the key organisations (e.g. Governing Bodies, Finance Committee, etc.)
- We take assurance from the Annual Accounts of these organisations and some cases we have been engaged in specific funding assurance and Centre sustainability activities.

I am reassured through the mechanisms described here that they are being managed in an appropriate manner and that there are no major issues that warrant reference here.

Internal audit review

In 2016-17, the Audit and Assurance Service Group (AASG) provided internal audit services until 1st October 2016 when they became part of the Government Internal Audit Agency (GIAA). Based on the delivery of the agreed programme of work, the annual internal audit opinion classification is 'moderate assurance'. Some improvements are required to enhance the adequacy and effectiveness of the framework of governance, risk management and control. The majority of individual pieces of internal audit work undertaken for the NERC core plan received moderate assurance ratings. These related to our strategic planning process, our Research Centres and a number of business critical projects.

Of the 18 NERC core audits completed, one limited assurance ratings was received in the following area:

- Small Capital Equipment

NERC will be implementing the recommendations outlined in this report to improve on the governance, risk management and control in this area.

The majority of cross-client audit work undertaken by GIAA were also rated moderate in assurance. These related to the RCUK Change Programme and other cross Research Council transactional processing.

Of the 24 cross-client audits carried out relevant to NERC, 4 reflected limited assurance:

- Change Management: RCUK Change Programme
- Change Management: RCUK Communication and Public Engagement
- Open Access Block Grant
- Procurement

GIAA will monitor implementation of the recommendations made during 2016-17 and will test their effectiveness as part of the 2017-18 audit programme.

Major project assurance

NERC is investing £225m in a new polar research vessel and associated works. The vessel will combine a cutting-edge scientific research platform with Antarctic logistics capability. Independent project assurance is provided through the Cabinet Office Infrastructure Project Authority. The most recent review, in December 2016, continued to offer a high (Amber/Green) rating i.e. 'Successful delivery appears probable'. NERC is implementing a number of recommendations designed to strengthen the programme, the most significant of which, is the activity to accelerate the development of the ship's future operating model.

In 2014, Government announced £31m of capital funding for BGS to develop two new world-class subsurface research facilities, which will generate knowledge applicable to a wide range of energy technologies. The project to develop these facilities received independent assurance in September 2016 when gateway 2 of the OGC review was successfully completed. The project received an Amber/Green rating for the delivery confidence assessment and the review remarked on the significant progress made since the first review.

Cyber security

NERC is committed to extending its Cyber Essentials accreditation in response to the increased cyber security threat; during 2016-17. BGS renewed Cyber Essentials Plus accreditation, and BAS, CEH, NOC and Research Technology Services achieved Cyber Essentials accreditation. The UK SBS are expected to achieve accreditation in 2017-18. Cyber Essentials focusses on five technical controls aimed at preventing 80% of cyber-attacks. NERC uses Cyber Essentials together with policy and procedural controls to reduce the risk of cyber-attacks.

Information security

During 2016-17 the NERC Information Assurance & Security Group (IASG) continued to meet to coordinate information security and information risk management. Regular six monthly reports on information assurance and cyber security were provided to the NERC Audit and Risk Assurance Committee.

In preparation for the new General Data Protection Regulation, which comes into operation in May 2018, NERC has reviewed its data protected related policies and procedures. Data protection awareness sessions held at Head Office in 2015-16

were well received and these have now been rolled out across the Centres. Further preparations for the new Regulation are being taken forward by a joint Research Council project.

NERC receives IT infrastructure services in support of common key business services from UK SBS. These are subject to regular audits and performance, including the review of information security incidents and cyber security threats, is subject to continuous assessment and challenge.

I am able to assure NERC's handling of information assets and staff awareness in respect of data handling. My assurance is based on the following:

- There is a clear recognition of the importance of good information and data security at senior management level and funding is made available to support a range of information security related initiatives across NERC.
- Our information assurance and security approach is kept under regular review by the Audit and Risk Assurance Committee.
- Roll out of refresher Cabinet Office Responsible for Information and Working with Security Classifications e-learning training for all staff is currently in progress. Staff are also being asked to reconfirm sign up to the NERC personal responsibility statement.
- Face to face information security awareness sessions for all staff are planned for later this year.
- Planning for implementation of the General Data Protection Regulation is being taken forward collectively through a joint Council project.
- Staff are required to report data losses promptly using an easily accessible incident reporting system and robust procedures are in place to handle incidents.

Effectiveness of whistleblowing arrangements
During 2016-17, NERC included information about Whistleblowing and the arrangements available to NERC staff as part of the Maintaining Organisational Controls training which aimed to increase staff awareness of their responsibilities to operate within the various policies, Cabinet Office controls and other guidance. Despite raising awareness of this policy both in 2015-16 and in 2016-17 NERC has had no instances of whistleblowing under this policy.

Tax arrangements of public sector appointees
The Governments review of tax arrangements of public sector appointees highlighted the possibility for artificial arrangements to enable tax avoidance. I can confirm that NERC's senior staff are all paid through the payroll and that arrangements are in place to provide assurance to BEIS that appropriate tax arrangements are in place to cover other in-year appointees. NERC provide BEIS with tax assurance evidence on a yearly basis, which forms part of their summary of BEIS tax assurance data that can be found at: **https://www.gov.uk/government/publications/**

Quality Assurance modelling
The review of quality assurance of Government analytical models undertaken by Sir Nicholas Macpherson and published by HM Treasury in March 2013 made a number of recommendations for government departments and their Arm's Length Bodies. To comply with this review and the BEIS requirements NERC have reviewed their use of analytical modelling in 2016-17 and have not identified any that were considered to be business critical.

Assurance relating to back office transactional processing
UK SBS Ltd provides processing services in HR, procurement, payroll, finance and

IT to all seven Research Councils. UK SBS provided grants processing services from 1 April 2016 to 31 December 2016, at which point the Research Councils transferred these services back in house.

The Executive Director of UK SBS has written to me stating that their Head of Internal Audit had provided an opinion of Moderate assurance for both the internal operations within UK SBS and for its customer facing operations.

To provide additional assurance NERC had been operating a number of supplementary controls. AASG had examined the additional controls, the outcomes of which were:

- Payroll – Moderate assurance
- Government Procurement Card (GPC) and iExpenses – Moderate assurance
- Order and payment processing – Moderate assurance
- Procurement – Limited assurance

The accepted audit recommendations in these areas will be taken forward in 2017-18.

The BEIS strategy for shared services, including the provision of services for UKRI, is still evolving. It has been agreed that the planned transfer of services from UK SBS to other bodies by April 2018 is now not achievable or necessarily desirable and that UK SBS is likely to be delivering a number of services in some form until 2019-20.

The Security and Resilience programme for Oracle 12.0.6 saw the successful update and transfer of databases and applications to a new environment at the end of 2016; notable benefits are to the security and resilience with the security assessment undertaken after the transfer indicating that the systems were well within the best practise threshold. Planning for the proposed Oracle upgrade from 12.0.6 to 12.1.3 is underway. Once completed, this will mean that both the platform and full application stack will be back into full support until 2021, opening the door for further improvements and upgrades if required and providing significant contingency for ongoing service provision for the Research Councils and UKRI pending a decision on future direction.

UK SBS highlights its key risks as continued resilience, capacity and capability to provide service. UK SBS' ability to maintain service delivery, prepare for and transfer services over the next 2-3 years will be highly dependent on capacity and capability.

UK Research and Innovation (UKRI) Transition Programme

On the 27 April 2017 Royal Assent was given to the Higher Education and Research Bill (HERB) which will result in the creation of UKRI. In February 2017 Sir Mark Walport was appointed as Chief Executive Designate of UKRI.

BEIS have been leading the UKRI Implementation Programme with the Research Councils working directly on the following work streams:

- People and HR
- Finance, governance and assurance
- Legal
- Procurement

Following the BEIS decision in October 2016 to revise their business case on common technology the Research Councils elected to restart the RCUK Business Digital and Technology Project focusing on the next 18 months' requirements.

In December 2016 BEIS took the decision to put their remaining Digital programmes on hold (grants and HR/finance system replacement), and to maintain UK SBS as

a shared service provider through to 2019-20. The Research Councils therefore agreed in February 2017 to start the requirements phase for HR and finance service and for a grants service working closely with the UKRI Transition Programme and work to secure and upgrade current UK SBS systems.

Also, 2016-17 saw the moves into Polaris House of Innovate UK and UK SBS as part of the office estates change project led by the cross Council Campus Oversight Board.

A Change Assurance Board was established in April 2016 with membership drawn from the Chairs of Audit Committees of the Research Councils. This Board has provided challenge and advice throughout the changes described above.

Conclusion

I have considered the evidence provided regarding the production of the Annual Governance Statement and independent advice and assurance provided by the Audit and Risk Committee. I conclude that NERC has satisfactory governance and risk management systems.

Remuneration and Staff Report

Remuneration Report

Council and Committee Remuneration (except Chief Executive)

Remuneration Policy (unaudited information)

Remuneration rates are the same across the Research Councils. The rates are reviewed each year by the Department for Business, Energy and Industrial Strategy (BEIS). In considering the new rates, BEIS may take into account the increase given to the senior civil service. BEIS consults with the Research Councils and the agreed change is implemented in October.

Appointments are non-pensionable and there is no entitlement to compensation for loss of office.

Standard fees (£ per annum)

	2016-17	2015-16
Council Chair	16,430	16,430
Council Members	6,850	6,850
Non-Executive Directors	10,000	10,000
Science Board and Audit & Risk Assurance Committee Chairs	9,110	9,110
Peer Review College Chairs	1,000	1,000

Membership of NERC Council 2016-17

	Period of Appointment	2016-17 Remuneration £000	2015-16 Remuneration £000
Sir Anthony Cleaver (Chair)	01/01/14 – 31/12/17	15 - 20	15 - 20
Professor Duncan Wingham [1] (Chief Executive and Deputy Chair)	01/01/12 – 31/12/17	0	0
Professor Ian Boyd [1]	01/02/13 – 31/08/17	0	0
Ms Juliet Davenport OBE	01/08/15 – 31/07/19	5 - 10	0 - 5
Mr Nick Folland [1]	01/08/13 – 31/07/17	0	5 - 10
Ms Leslie Heasman	01/08/15 – 31/07/19	5 - 10	0 - 5
Professor Louise Heathwaite [1]	17/12/12 – 31/08/17	0	0
Mr Imran Khan	01/08/15 – 31/07/19	5 - 10	0 - 5
Professor Dame Georgina Mace DBE	01/08/11 – 31/07/18	5 - 10	5 - 10
Professor Guy Orpen	01/08/15 – 31/07/19	5 - 10	0 - 5
Professor Ian Poll OBE	23/09/14 – 22/09/18	5 - 10	5 - 10
Mr Ian Simm	01/08/13 – 31/07/17	5 - 10	5 - 10
Ms Christine Tacon CBE	01/08/13 – 31/07/17	5 - 10	5 - 10
Lord Willis of Knaresborough	01/08/11 – 31/07/19	5 - 10	5 - 10
Professor Lesley Yellowlees CBE	01/08/15 – 31/07/19	5 - 10	0 - 5
Professor Dame Julia Slingo DBE [1]	01/05/09 – 13/12/16	0	0

Notes:
1 Honoraria are not payable to members who are civil servants, employees of NERC or full time employees of organisations whose funds are derived from Votes of Parliament.

Membership of NERC Council by gender as at 31 March 2017

	Male	Female
Number of Members	9	6
% of members	60%	40%

Committee rates (£ per day)

	2016-17	2015-16
Committee Chair	230	230
Committee Members	170	170
Peer Review College Members	200	200

Chief Executive and NERC Executive Directors (audited information)

BEIS Remuneration Committee
The Chief Executive's remuneration is determined by the Permanent Secretary of BEIS. The Permanent Secretary is advised by a Remuneration Committee chaired by the Director General of Research Councils. The Chair of NERC Council is consulted.

NERC Remuneration Committee
The remuneration of NERC Executive Directors is reviewed and adjusted annually by the Council Remuneration Committee. The committee is chaired by the Chair of Council and other membership comprises the Chief Executive and two Council Members. Members of the Remuneration Committee are listed within the Governance Statement in the Accounts.

Remuneration Policy
The Remuneration Committee works in accordance with the public sector policy on senior staff pay. In 2016-17, this policy stipulated that 90% of senior staff were eligible for a general award of 1% on average and that 25% of senior staff were eligible for a non-consolidated performance bonus, on the basis of the level of performance against objectives as assessed by the individual's manager.

Contractual Policy
Professor Wingham started his tenure on 1 January 2012. His initial contract was for a period of four years and has been extended for a further period of two years.

All senior officers covered by this report, apart from the Chief Executive, hold appointments that are open-ended with notice periods of three months.

It should be noted that no other senior staff are on a service contract.

NERC Management Board (NMB) (unaudited information)

Membership of NMB as at 31 March 2017	Position	Notes
Professor Duncan Wingham	Chief Executive & Accounting Officer	
Mr Paul Fox	Chief Operating Officer	
Dr Phil Heads	Associate Director, Strategy and Impact	
Ms Alison Robinson	Director, Corporate Affairs and Change Management	
Ms Claire Turner	Director, Finance	Appointed effective 1 August 2016
Professor Tim Wheeler	Director, Science & Innovation	Appointed effective 1 April 2016
Mr Richard Gledhill	Non-Executive Director	
Mr Paul Hayden	Non-Executive Director	

Membership of NMB by gender as at 31 March 2017

	Male	Female
Number of Members	6	2
% of Members	75%	25%

Remuneration of Senior Employees (audited information)

Single total figure of remuneration								
NMB Members	Salary (£'000)		Bonus Payments (£'000)		Pension Benefits (£'000)		Total (£'000)	
	2016-17	2015-16	2016-17	2015-16	2016-17	2015-16	2016-17	2015-16
Professor Duncan Wingham	130 - 135	130 - 135	5 - 10	10 - 15	52	49	190 - 195	190 - 195
Mr Nigel Bird [1]	25 - 30	80 - 85	5 - 10	-	4	26	35 - 40	105 - 110
Mr Paul Fox	100 - 105	100 - 105	10 - 15	10 - 15	39	42	150 - 155	150 - 155
Dr Phil Heads	65 - 70	65 - 70	0 - 5	-	15	28	80 - 85	95 - 100
Ms Alison Robinson	85 - 90	85 - 90	10 - 15	-	63	36	160 - 165	120 - 125
Ms Claire Turner [2]	45 - 50	-	-	-	18	-	60 - 65	-
Professor Tim Wheeler [3]	110 - 115	-	-	-	1,051	-	1,160 - 1,165	-

Notes:
1 Stood down as Director, Finance effective 31st July 2016, full year equivalent salary £75-80,000.
2 Full year equivalent salary is £70-75,000.
3 Pension benefits include the transfer in of funds from another pension scheme.

Salary and Allowances
Salary and Allowances include gross salaries, performance related bonuses and pension benefits. It does not include severance payments, employer pension contributions and the cash equivalent transfer value of pensions. Bonus figures are those paid out during the year.

Compensation for Loss of Office
There have been no compensation payments for loss of office of senior managers in 2016-17 or 2015-16.

Payments to Past Directors
There have been no payments to past directors in 2016-17 or 2015-16. All payments detailed in the remuneration table occurred during employment.

Fair Pay Disclosure (audited information)
Reporting bodies are required to disclose the relationship between the remuneration of the highest paid director in their organisation and the median remuneration of the organisation's workforce.

The banded remuneration of the highest paid director in NERC (the Chief Executive) in the financial year 2016-17 was £140,000-£145,000 (2015-16: £140,000-£145,000). This was 4.7 times (2015-16: 4.7) the median remuneration of the workforce, which was £30,612 (2015-16: £30,600).

No employees received remuneration in excess of the highest-paid director in 2016-17 or 2015-16. Remuneration ranged from £10,680 to £111,057 (2015-16: £12,415 to £116,149).

Total remuneration includes salary, non-consolidated performance-related pay and benefits-in-kind. It does not include severance payments, employer pension contributions and the Cash Equivalent Transfer Value (CETV) of pensions.

Pension Benefits (audited information)

NMB Members	Accrued pension and lump sum at pension age as at 31/03/17	Real increase in pension and lump sum at pension age	Cash equivalent transfer value as at 01/04/16	Cash equivalent transfer value as at 31/03/17	Real increase in cash equivalent transfer value
	£000	£000	£000	£000	£000
Professor Duncan Wingham	15 - 20	2.5 - 5	201	255	38
Mr Nigel Bird [1]	70 - 75	0 - 2.5	263	268	2
Mr Paul Fox	20 - 25	0 - 2.5	242	278	23
Dr Phil Heads	85 - 90	0 - 2.5	687	738	14
Ms Alison Robinson	15 - 20	2.5 - 5	140	183	23
Ms Claire Turner	10 - 15	0 - 2.5	92	103	7
Professor Tim Wheeler [2]	50 - 55	52.5 - 55	-	646	163

Notes:
1 Stood down as Director, Finance effective 31st July 2016, figures shown are as at this date.
2 Includes the transfer in of funds from another pension scheme.

Details of pension scheme
All senior employees are ordinary members of the Research Councils' Pension Scheme (RCPS) which is an unfunded public service defined benefit scheme with pension costs met from employer and employee contributions on a pay-as-you-go basis and the balance covered by grant-in-aid.

The accrued pension quoted is the pension the member is entitled to receive when they reach pension age or immediately on ceasing to be an active member of the scheme if they are already at or over pensionable age. Pensionable age is 60 for members of Classic, Classic Plus and Premium and 65 for members of Nuvos. Pensionable age for the new Alpha scheme is the later of 65 and the members' state retirement age.

Further details about the RCPS and the new Alpha scheme can be found below in the Staff Report.

Cash Equivalent Transfer Value
A CETV is the actuarially assessed capitalised value of the pension scheme benefits accrued by a member at a particular point in time. The benefits valued are the member's accrued benefits and any contingent spouse's or partner's benefits from the scheme. A CETV is the amount that would be paid by a pension scheme when the member leaves a scheme and chooses to transfer the benefits accrued. The pension figures shown relate to the benefits that the individual has accrued as a consequence of their membership of the pension scheme, not just their service in a senior capacity to which disclosure applies.

The CETV figures include the value of any pension benefit in another scheme which the individual has transferred to the Research Councils' pension arrangement and for which the RCPS has received a transfer payment commensurate with the additional pension liabilities being taken on. They also include any additional pension benefit accrued to the member as a result of their purchasing additional years and additional pension at their own cost.

CETVs are calculated in accordance with The Occupational Pension Schemes (Transfer Values) (Amendment) Regulations 2008 and do not take account of any actual or potential reduction to benefits resulting from Lifetime Allowance Tax which may be due when pension benefits are taken.

Real increase in the value of the CETV
The real increase in the value of the CETV reflects the increase effectively funded by the employer. It takes account of the increase in accrued pension due to inflation and contributions paid by the employee (including the value of any benefits transferred from another pension scheme) and uses common market valuation factors for the start and end of the period.

Staff Report (unaudited information)

Staff numbers

	2016-17 No.	2015-16 No.
Permanent staff	1,966	2,031
Temporary and contract staff	382	347
Staff on inward secondment/loan	8	5
Agency	9	4
	2,365	**2,387**

The total number of staff reported in the Annual Report is based on head count as at 31 March 2017, whereas the above figures are average FTEs for the year.

Senior staff by band[i]

	2016-17 No.	2015-16 No.
Band 1	6	6
Band 2	16	16
	22	**22**

Note:
i As per FReM 5.3.27, senior staff is defined as those equivalent to members of the senior civil services. In NERC this covers bands 1 & 2.

Staff composition by gender

	2016-17 No.		2015-16 (Re-presented)[i] No.	
	Female	Male	Female	Male
Directors	2	6	2	6
Other senior staff	4	10	3	11
Other employees	891	1,452	910	1,455
	897	**1,468**	**915**	**1,472**

Note:
i Re-presented to reflect reconstitution of NERC Executive Board as NERC Management Board.

Sick absence per full-time employee equivalent

	2016-17	2015-16
Sick absence rate	1.8%	1.8%
Equivalent in days	4.5	4.4

Staff costs
See note 3 of the Annual Accounts for details of staff costs.

Details of pension scheme
Most employees of NERC are members of the Research Councils' Pension Scheme (RCPS), which is an unfunded public service defined benefit scheme with pension funded costs met from employer and employee contributions on a pay-as-you-go basis and the balance covered by an annual grant-in-aid. The RCPS is in all respects 'by-analogy' with the Principal Civil Service Pension Scheme (PCSPS), except that the employer's contribution is determined separately. The scheme provides retirement and related benefits based on final or average emoluments. Redundancy and injury benefits are administered and funded by the Council. The scheme is administered by the Research Councils' Joint Superannuation Service with the associated grant-in-aid managed by BBSRC.

Employees may be in one of four defined benefit scheme arrangements; either a 'final salary' scheme (Classic, Classic Plus or Premium); or a career average scheme (Nuvos). Pensions payable are increased annually in line with changes in the Consumer Prices Index (CPI).

On 1 April 2015 Civil Service Pensions launched a new pension scheme called Alpha. This scheme is similar to the Nuvos career average scheme but with the retirement age aligned to the state pension age. RCPS cannot operate by analogy to the Alpha scheme as the legislation does not permit this. Reform plans are in progress and expected to be implemented in April 2018. In the meantime BIS (now BEIS) have given permission for RCPS to continue 'as is' beyond April 2015.

The employer contribution rate is agreed by the RCPS Board of Management on the recommendation of the Government Actuary's Department (GAD) and is set at 26.0% of pensionable pay. During 2016-17 employee contribution rates varied between 3.80% and 8.05% depending on scheme and annual pensionable earnings (see table below). NERC paid costs in the year of £19,679k (2015-16: £20,030k).

Annualised pensionable earnings

	Classic Scheme contribution %	Classic Plus, Premium & NUVOS Scheme contribution %
Up to £15,000	3.80	4.60
£15,001 - £21,210	4.60	4.60
£21,211 - £48,471	5.45	5.45
£48,472 - £150,000	7.35	7.35
Over £150,000	8.05	8.05

The last actuarial valuation undertaken for RCPS was at 31 March 2006 and was completed in 2008-09.

It is expected that in April 2018 the RCPS will transfer in to Civil Service pension arrangements. Active RCPS members who had less than 10 years to their scheme pension age as at 1 April 2012 are fully protected and will remain in their current scheme section. Those with between 10 and 13.5 years to their scheme pension age as at 1 April 2012 will be subject to tapered enrolment in the new career average Alpha scheme with this occurring between the time of the RCPS transfer and 1 February 2022. All other members will transfer to the Alpha scheme at the time of the RCPS transfer.

For further details about the Research Councils Pension Scheme pension arrangements can be found at the website **http://jsspensions.nerc.ac.uk/**

A Partnership Pension Account was made available to new recruits from 1 October 2002, based on the portable Stakeholder Pension introduced by the Government in 2001. This is a defined contribution scheme. The employers pay the RCPS 0.8% of pensionable pay to cover death in service and ill-health benefits. The employers pay an age related contribution to the employee's private pension provider.

The Council also paid contributions during the year to a number of other multi-employer pension schemes for specific groups of employees. Details of these schemes are shown below:

Scheme	Rate of contribution	Year of last valuation
Merchant Navy Officers' Pension Fund	20%	2015
Merchant Navy Ratings' Pension Fund	2%	2014
Merchant Navy Ratings Group Personal Pension Plan [i]	4%	n/a

i A rate of 2% is applicable for employees who are also members of the MNRPF scheme.

Expenditure on strategic consultancy
During the year NERC expenditure on strategic consultancy totalled £59k (2015-16: £13k).

Staff initiatives and communication
Key people initiatives implemented across NERC in 2016-17 include:

- the undertaking of an Equal Pay Audit of NERC's Band 3-9 Pay system and the development of an action plan to take steps to address the findings
- the development of plans to meet the public sector target for the number of apprenticeship starts during 2017-18
- NERC Head Office regaining Investors in People accreditation for another three years
- building upon the progress reported in 2015-16, further delegation of HR responsibility to NERC's research centres (for example, in leadership development programmes and future promotion schemes) in preparation for changes associated with NERC's Governance, Responsibilities and Ownership (GRO) programme

In addition to these key initiatives, NERC is actively monitoring progress against delivery of the actions identified in its two-year Equality and Diversity Plan and is a key contributor to the transition arrangements for all NERC staff to UKRI and to the transformation of future UKRI corporate services.

NERC uses a range of approaches to keep staff informed on matters of concern to them, including financial and economic factors affecting the organisation. These include regular staff meetings, ad hoc briefings, the opportunity to hear from directors and the chief executive, intranet updates and regular newsletters.

Staff have the opportunity to share their views and thoughts, particularly through regular employee surveys, for instance, NERC Head Office participated in the Civil Service People Survey for the first time in 2016-17. Although there is still room for improvement, the results were generally positive and we were particularly pleased to note that the overall staff engagement index (70%) exceeded that of the Civil Service People Survey average by 11%.

Arrangements are also in place for regular consultative meetings with the trade unions representing NERC staff.

Staff policies – equal opportunities
NERC applies the Research Council Equality & Diversity Policy and publishes data to enable effective benchmarking.

NERC is committed to the principle of using objective, transparent and non-discriminatory criteria in recruitment and promotion, to making reasonable adjustments for applicants with a disability, to enabling existing staff to continue in employment if they develop a disability and to encouraging all employees to develop to their full potential.

Off-payroll engagements
At 31 March 2017 NERC had four off-payroll engagements costing more than £220 per day and lasting for longer than six months. This included one engagement that reached six months duration between 1 April 2016 and 31 March 2017, one engagement that existed between one and two years at the time of reporting, one engagement that existed between two and three years and one engagement that existed between three and four years. Processes are in place to provide assurance that appropriate tax arrangements, as set out by the Alexander review (2012), are in place to cover all in-year appointees.

Staff exits

Exit package band	Exit package cost band	Total number of exit packages by cost band [i]	
		2017	2016
1	<£10k	12	13
2	£10k-£25k	3	25
3	£25k-50k	5	31
4	£50k-£100k	6	19
Total exit packages agreed		**26**	**88**
		£000	**£000**
Total costs of exit packages agreed [ii, iii]		**738**	**2,996**

Notes:
i All payments were within contracted entitlement. There were no compulsory exits during the year.
ii Full costs of all exit packages agreed during the year, including costs that were covered by the release of provisions as per Note 11 of the Annual Accounts. These costs will therefore differ from the total amount charged for the year.
iii The highest exit package agreed during the year was for £95k. The lowest exit package agreed during the year was for £4k. The median of all exit packages agreed was £13k.

Parliamentary Accountability and Audit Report (audited information)

Regularity of expenditure
I can confirm that for the financial year ended 31 March 2017, neither I nor my staff authorised a course of action, the financial impact of which is that transactions infringe the requirements of regularity as set out in Managing Public Money, and that Treasury approval has been obtained for all novel, contentious or repercussive transactions relating to 2016-2017.

Contingent liabilities
NERC has no material contingent liabilities to report as at 31 March 2017.

Losses and special payments
NERC has incurred the following losses and special payments during the year:

Losses statement

Type	31 March 2017 £000	31 March 2016 £000
Stores losses [i]	72	114
Fruitless payments [ii]	2	-
Claims abandoned [iii]	131	4
Constructive losses	-	160
Total value of losses	**205**	**278**
Total number of losses	**15**	**33**

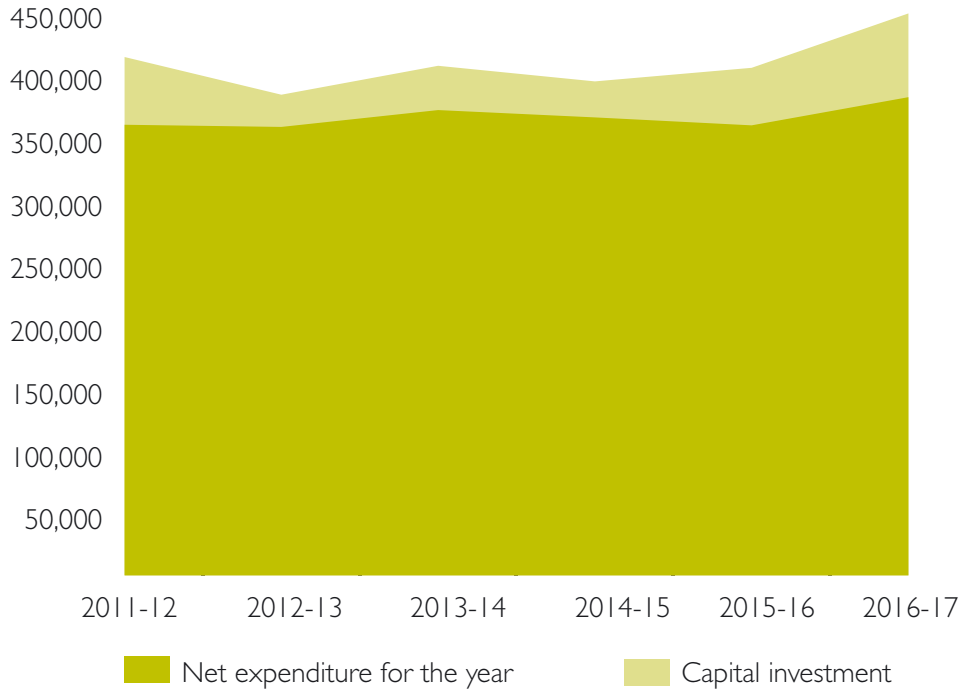
Notes:
i Store losses consist of 4 assets lost during normal operations and 2 thefts.
ii Fruitless payments were salvage costs for the recovery of an asset lost during normal operations.
iii Claims abandoned consist of 8 bad debts and administrative losses written off as unrecoverable.

Special payments

Type	31 March 2017 £000	31 March 2016 £000
Ex-gratia payments [i]	199	94
Total value of special payments	**199**	**94**
Total number of special payments	**7**	**2**

Note:
i Ex-gratia payments consist of settlements of 7 legal claims.

Trends in NERC annual expenditure and investment (in £000)



Professor Duncan Wingham
Chief Executive and Accounting Officer
21 June 2017

The Certificate of the Comptroller and Auditor General to the Houses of Parliament

I certify that I have audited the financial statements of the Natural Environment Research Council for the year ended 31 March 2017 under the Science and Technology Act 1965. The financial statements comprise: Statements of Comprehensive Net Expenditure, Financial Position, Cash Flows, Changes in Taxpayers' Equity, and the related notes. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the Remuneration and Staff Reports and the Parliamentary Accountability disclosures described as having been audited.

Respective Responsibilities of the Council, Accounting Officer and Auditor
As explained more fully in the Statement of Chief Executive's Responsibilities with Respect to the Financial Statements, the Council and the Chief Executive, as Accounting Officer, are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view. My responsibility is to audit, certify and report on the financial statements in accordance with the Science and Technology Act 1965. I conducted my audit in accordance with International Standards on Auditing (UK and Ireland). Those standards require me and my staff to comply with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of the Audit of the Financial Statements
An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of: whether the accounting policies are appropriate to the Natural Environment Research Council's circumstances and have been consistently applied and adequately disclosed; the reasonableness of significant accounting estimates made by the Natural Environment Research Council; and the overall presentation of the financial statements. In addition I read all the financial and non-financial information in the Performance Report and Accountability Report to identify material inconsistencies with the audited financial statements and to identify any information that is apparently materially incorrect based on, or materially inconsistent with, the knowledge acquired by me in the course of performing the audit. If I become aware of any apparent material misstatements or inconsistencies I consider the implications for my certificate and report.

I am required to obtain evidence sufficient to give reasonable assurance that the expenditure and income reported in the financial statements have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

Opinion on Regularity
In my opinion, in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

Opinion on Financial Statements
In my opinion:

- the financial statements give a true and fair view of the state of the Natural Environment Research Council's affairs as at 31 March 2017 and the net expenditure for the year then ended; and
- the financial statements have been properly prepared in accordance with the Science and Technology Act 1965 and Secretary of State directions issued thereunder.

Opinion on other matters
In my opinion:
- the parts of Remuneration and Staff Report and the Parliamentary Accountability disclosures to be audited have been properly prepared in accordance with Secretary of State directions made under the Science and Technology Act 1965; and
- the information given in Performance Report and Accountability Report for the financial year for which the financial statements are prepared is consistent with the financial statements.

Matters on which I report by exception
I have nothing to report in respect of the following matters which I report to you if, in my opinion:

- adequate accounting records have not been kept or returns adequate for my audit have not been received from branches not visited by my staff; or
- the financial statements and the part of the Remuneration and Staff Report and the Parliament Accountability disclosure to be audited are not in agreement with the accounting records or returns; or
- I have not received all of the information and explanations I require for my audit; or
- the Governance Statement does not reflect compliance with HM Treasury's guidance.

Report
I have no observations to make on these financial statements.

Sir Amyas C E Morse

Comptroller and Auditor General

National Audit Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP

10 July 2017

Financial statements

Statement of comprehensive net expenditure for the period ended 31 March 2017

	Notes	2016-17 £000	Re-presented [i] 2015-16 £000
Operating income	6	**(70,356)**	**(69,674)**
Operating expenditure			
Staff costs	3	112,961	115,505
Purchase of goods and services	4.1	84,821	89,598
Depreciation, amortisation and impairments	4.2	55,321	38,922
Provision expense		4,784	4,018
Research and development grants	5	190,519	174,766
Notional service charge		5,950	5,536
Other operating expenditure		(1,869)	(41)
Total operating expenditure		**452,487**	**428,304**
Net operating expenditure		**382,131**	**358,630**
Finance income		(1,102)	(1)
Finance expense		254	189
Net expenditure for the year		**381,283**	**358,818**
Other comprehensive expenditure		307	(12,866)
Comprehensive net expenditure for the year		**381,590**	**345,952**

Note:
i The accounts have been re-presented to treat income received from the former Department of Energy and Climate Change as financing following its merger with the Department for Business, Innovation and Skills to form the new Department for Business, Energy and Industrial Strategy. In addition they have been re-presented in the new format of the Accounts Preparation and Advice Centre (APAC) to be consistent with those of the other Research Councils.

All activities are continuing.

The notes on page 60 to 75 form part of these accounts.

Statement of financial position as at 31 March 2017

	Notes	31 March 2017 £000	31 March 2016 £000
Non-current assets			
Property, plant and equipment	7	467,540	454,321
Intangible assets		1,638	1,770
Financial assets		94	94
Trade and other receivables	8	58	71
Total non-current assets		**469,330**	**456,256**
Current assets			
Assets held for sale		-	78
Trade and other receivables	8	24,785	24,064
Cash and cash equivalents	9	1,677	2,801
Total current assets		**26,462**	**26,943**
Total assets		**495,792**	**483,199**
Current liabilities			
Trade and other payables	10	(57,388)	(60,075)
Provisions	11	(605)	(1,008)
Total current liabilities		**(57,993)**	**(61,083)**
Total assets less current liabilities		**437,799**	**422,116**
Non-current liabilities			
Trade and other payables	10	(2,007)	(3,374)
Provisions	11	(14,178)	(9,761)
Total non-current liabilities		**(16,185)**	**(13,135)**
Total assets less liabilities		**421,614**	**408,981**
Taxpayers' equity			
General fund		318,082	294,794
Revaluation reserve		103,532	114,187
Total equity		**421,614**	**408,981**

The notes on page 60 to 75 form part of these accounts.

Professor Duncan Wingham
Chief Executive and Accounting Officer
21 June 2017

Statement of cash flows for the period ended 31 March 2017

	Notes	2016-17 £000	Re-presented [i] 2015-16 £000
Cash flows from operating activities			
Net expenditure for the year		(381,283)	(358,818)
Adjustments for non-cash transactions		53,452	38,881
Increase in trade and other receivables	8	(708)	(2,797)
Decrease in trade and other payables	10	(2,796)	(1,225)
Increase in provisions	11	4,014	3,279
Net cash outflow from operating activities		**(327,321)**	**(320,680)**
Cash flows from investing activities			
Purchase of property, plant and equipment	7	(71,583)	(45,531)
Purchase of intangible assets		(344)	(511)
Proceeds of disposal of property, plant and equipment, intangible assets and investments		5,159	176
Net cash outflow from investing activities		**(66,768)**	**(45,866)**
Cash flows from financing activities			
Funding received from BEIS		388,273	362,370
Notional service charge		5,950	5,536
Capital element of finance lease		(1,258)	(1,158)
Net cash inflow from financing activities		**392,965**	**366,748**
Net (decrease)/increase in cash and cash equivalents in this period		**(1,124)**	**202**
Cash and cash equivalents at the beginning of the period		2,801	2,599
Cash and cash equivalents at the end of the period		**1,677**	**2,801**

Note:

i The accounts have been re-presented to treat income received from the former Department of Energy and Climate Change as financing following its merger with the Department for Business, Innovation and Skills to form the new Department for Business, Energy and Industrial Strategy. In addition they have been re-presented in the new format of the Accounts Preparation and Advice Centre (APAC) to be consistent with those of the other Research Councils.

The notes on page 60 to 75 form part of these accounts.

Statement of changes in taxpayers' equity for the period ended 31 March 2017

Re-presented [i]	General fund £000	Revaluation reserve £000	Total equity £000
Balance as at 1 April 2015	**274,781**	**112,246**	**387,027**
Grant-in-aid and other BEIS funding	362,370	-	362,370
Net expenditure for the year	(358,818)	-	(358,818)
Movements in reserves:			
Notional charge	5,536	-	5,536
Revaluation in year	-	12,866	12,866
Transfers between reserves	10,925	(10,925)	-
Balance at 1 April 2016	**294,794**	**114,187**	**408,981**
Grant-in-aid, notional costs and other BEIS funding	388,273	-	388,273
Net expenditure for the year	(381,283)	-	(381,283)
Movements in reserves:			
Notional charge	5,950	-	5,950
Revaluation in year	-	(307)	(307)
Transfers between reserves	10,348	(10,348)	-
Balance at 31 March 2017	**318,082**	**103,532**	**421,614**

Note:
i The accounts have been re-presented to treat income received from the former Department of Energy and Climate Change as financing following its merger with the Department for Business, Innovation and Skills to form the new Department for Business, Energy and Industrial Strategy. In addition they have been re-presented in the new format of the Accounts Preparation and Advice Centre (APAC) to be consistent with those of the other Research Councils.

The notes on page 60 to 75 form part of these accounts.

Notes to the Accounts

1. Statement of accounting policies

1.1 Basis of accounting

These accounts have been prepared in accordance with The Science and Technology Act 1965, the 2016-17 Government Financial Reporting Manual (FReM) issued by HM Treasury and with directions made by the Secretary of State. They meet the accounting and disclosure requirements of the Companies Act 2006 and accounting standards issued or adopted by the Accounting Standards Board in as far as these requirements are appropriate in accordance with the FReM.

The accounting policies contained in the FReM apply International Financial Reporting Standards (IFRS) as adapted or interpreted for the public sector context. Where the FReM permits a choice of accounting policy, the accounting policy which is judged to be most appropriate to the particular circumstances of the Natural Environment Research Council (NERC) for the purpose of giving a true and fair view has been selected. The particular policies adopted by NERC for material transactions or where management has exercised judgement in selecting the accounting policy, are described below. They have been applied consistently in dealing with items that are considered material to the accounts.

These financial statements are presented in pounds sterling, NERC's functional currency, and have been rounded to the nearest thousand pounds (£000).

1.2 Accounting convention

These accounts have been prepared under the historical cost convention modified to include the fair valuation of property, plant and equipment, intangible assets and inventories to the extent required or permitted under IFRS as set out in the relevant accounting policies.

1.3 Going concern

NERC is dependent on funding from BEIS to meet liabilities falling due within future years. In March 2016 BEIS published The Allocation of Science and Research Funding 2016-17 to 2019-20, which shows continued funding for NERC for this period. On the basis of this publication, NERC has no reason to believe that future funding will not be forthcoming and therefore the accounts are produced on a going concern basis. Confirmation of the 2017-18 allocation was received from BEIS in March 2017 detailing the NERC ring-fenced budgets.

The Higher Education & Research Bill received its first reading in May 2016 setting out the government's intention regarding the research council's future, with the creation of a single executive non-department public body operating at arm's length from Government – UK Research and Innovation. The Bill states the Government will ensure the seven research discipline areas continue to have strong and autonomous leadership, and that UK Research and Innovation will incorporate the assets, liabilities and functions of the seven Research Councils, Innovate UK, and HEFCE's research funding. The names and brands of the Research Councils and Innovate UK will be retained amongst a number of other protections. The bill received royal assent on 27 April 2017. On the strength of this information, the accounts have been prepared on a going concern basis.

1.4 Non-current assets

Property, plant and equipment

Property, plant and equipment held for their service potential and in use are carried at current value in existing use. Property, plant and equipment recently held for

their service potential, but surplus and with restrictions on sale, will continue to be carried at current value in existing use; Property, plant and equipment that are surplus, but without any restrictions on sale, are held at fair value using IFRS 13 *Fair Value Measurement*. Property, plant and equipment not held for their service potential are valued in accordance with IFR 5 *Assets held for Sale* or IAS 40 *Investment Properties*.

The capitalisation threshold for property, plant and equipment is £10,000. This includes the purchase of land and buildings, construction and services projects, and equipment.

Revaluation
Land, buildings, ice stations in Antarctica, ships and aircraft are independently and professionally revalued every five years. These assets are subject to annual indexation when a full revaluation is not completed.

The British Antarctic Survey (BAS) Antarctic Research Stations were valued in 2016-17 by Rafe Staples BSc (Hons), MRICS and Jenefer Bugge MA (Hons) MLE MRICS acting as external valuers, on the basis of depreciated replacement cost. The reinstatement costs were calculated by Turner & Townsend and adjusted by BAS and Powis Hughes in accordance with the RICS Valuation – Professional Standards (January 2014).

The UK land and building assets were subject to revaluation in 2016-17. The valuations were undertaken jointly by GVA and Powis Hughes, prepared by RICS registered valuers acting as external valuers and completed in accordance with NERC's accounting policies and the RICS Valuation – Professional Standards (January 2014). Non-specialist operational properties have been assessed to fair value, interpreted as market value for existing use, with specialist operational assets valued at depreciated replacement cost. Non–operational assets are valued at market value.

The four research ships, RRS *Discovery*, RRS *James Clark Ross*, RRS *Ernest Shackleton* and RRS *James Cook*, were revalued in 2013-14 by E.A. Gibson Shipbrokers Ltd. All aircraft were also revalued in 2013-14 by the International Bureau of Aviation Group Limited.

All other plant, equipment and transport are revalued using relevant indices.

Any surplus or deficit on revaluation is taken to a revaluation reserve, except that any permanent diminution in value is charged to the statement of comprehensive net expenditure in the year in which it is recognised. Where subsequent evidence suggests a partial or complete reversal of the diminution in value, this is also reflected in the statement of comprehensive net expenditure in the year in which it is recognised as per IAS 36.

Increased depreciation charges arising from the revaluation are matched by annual transfers from the revaluation reserve to the income and expenditure reserve. On the disposal of a revalued asset, that element of the revaluation reserve which becomes realised as a result is transferred directly to the income and expenditure reserve.

Impairments
If any indication of impairment exists in any item of property, plant or equipment, the recoverable amount of the asset is estimated in order to determine the extent of any impairment loss. The recoverable amount is the higher of fair value less costs to sell and value in use. Impairment losses are charged to the statement of

comprehensive net expenditure.

Any reversal of an impairment charge is recognised in the statement of comprehensive net expenditure to the extent that the original charge, adjusted for subsequent depreciation, was previously recognised, with any remaining amount recognised in the revaluation reserve.

Depreciation
Property, plant and equipment are depreciated at rates calculated to write them down to the estimated residual values on a straight line basis over the estimated useful lives. Assets under construction are not depreciated until the asset is brought into use.

Freehold land is not depreciated and other property, plant and equipment assets are normally depreciated over the following periods:

Leasehold land	over the terms of the lease
Freehold buildings	up to 50 years or valuer's estimates of economic life
Long leasehold buildings	up to 50 years (or the length of the lease if less)
Short leasehold buildings	over the length of the lease
Antarctic ice stations	up to 35 years or valuer's estimates of remaining useful life
Plant and machinery	5-15 years
Ships and aircraft	minimum of 20 years for ships, 15 years for aircraft
Scientific, office and major computing equipment	3-10 years
Motor vehicles	3-10 years

Component accounting
Property, plant and equipment may have parts with different useful lives. In accordance with the provisions of IAS 16 each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

1.5 Cash and cash equivalents
Cash and cash equivalents comprise cash balances and deposits which are repayable on demand.

1.6 Financial instruments
NERC recognises and measures financial instruments in accordance with IAS 39 *Financial Instruments: Recognition and Measurement* as interpreted by the FReM.

Financial assets and liabilities are initially measured at fair value plus transaction costs, unless they are carried at fair value through profit or loss, in which case transaction costs are charged to operating costs.

Financial assets are derecognised when the rights to receive future cash flows have expired or are transferred and NERC has transferred substantially all the risks and rewards of ownership.

Financial liabilities are derecognised when the obligation is discharged, cancelled or expires.

Trade receivables
Trade receivables are carried at original invoice amount less allowance for

impairment. Provision for impairment is established when there is objective evidence that NERC will not be able to collect all amounts due according to the original terms of the receivable. The amount of provision is the difference between the carrying amount and recoverable amount and is recognised in the statement of comprehensive net expenditure.

Trade and other payables
Trade and other payables are recognised in the period in which related money, goods or services are received or when a legally enforceable claim against NERC is established or when the corresponding assets or expenses are recognised.

Risk
Due to the non-trading nature of its activities and the way in which NERC is financed, NERC is not exposed to the degree of financial risk faced by non-public sector entities. NERC has very limited powers to borrow or invest surplus funds. Financial assets and liabilities are generated by day to day operational activities and are not held to change the risks facing NERC in undertaking its activities.

NERC is subject to foreign currency risk through the maintenance of bank accounts in foreign currencies (predominantly the EUR and the USD) to deal with day to day overseas transactions. The risk is low level and not actively managed by NERC.

1.7 Provisions
Provisions are recognised and measured in accordance with IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*. Where the time value of money is material, provisions are discounted to present value using HM Treasury's real discount rates, currently +0.24% for pension provisions and for all other provisions: short-term -2.70%, medium-term -1.95% and long-term -0.80%.

1.8 Grant-in-aid and other BEIS funding
Under the FReM, Non-Departmental Public Bodies (NDPBs) regard grant-in-aid and other funding received for revenue purposes as contributions from controlling parties giving rise to a financial interest in the body. As a result, grant-in-aid and other funding received from BEIS are credited to the general fund, rather than being recognised as income in the statement of comprehensive net expenditure.

1.9 Operating income
Operating income is income that relates directly to the operating activities of NERC and is measured at the fair value of consideration received or receivable. It is recorded net of trade discounts, value added tax and other taxes.

1.10. Grant and training awards payable
The majority of research grants and fellowships are paid by the Council on an instalment basis in arrears in accordance with an agreed payment profile. The majority of studentship payments are paid on a quarterly instalment basis in advance directly to the research institute.

Research and training grants made in advance or in arrears are accounted for on an accruals basis in the financial statements. Future commitments at the balance sheet date are disclosed in Note 12 of the financial statements.

1.11 Ownership of equipment purchased with NERC grants
Equipment purchased by an institution with research grant funds supplied by NERC, belong to the institution and are not included in NERC's property, plant and equipment. Through the conditions of grant applied to institutions funded, NERC reserves the right to determine the disposal of such equipment and how any disposal proceeds are to be utilised.

1.12 Pensions
Payments are made to the Research Councils' Pension Scheme in respect of superannuation benefits for Council staff. In addition the Council also pays contributions to a number of other multi-employer pensions schemes for specific groups of employees, such as the Merchant Navy Officers' and Ratings' Pensions Funds and Plans.

1.13 Early retirements
The costs of early retirements are charged to NERC's accounts in the year in which the binding decision is taken to release staff and liabilities recognised. Payments by the Council of early retirement lump sums are recoverable from the Research Councils' Pension Scheme when recipients achieve normal retirement age. Recoverable amounts are recognised as receivables in these accounts and offset against annual staff restructuring costs.

1.14 Employee benefits
In accordance with IAS 19 *Employee benefits*, NERC is required to recognise short term employee benefits when an employee has rendered service in exchange for those benefits. An example of this is the employee annual leave accrual.

1.15 Value Added Tax
As NERC is partially exempt for VAT purposes, irrecoverable VAT is charged to the relevant expenditure category or included in the capitalised purchase cost of property, plant and equipment. Where output tax is charged or input tax is recoverable the amounts are stated net of VAT. NERC has charitable status for VAT purposes.

1.16 Leases
Leases are recognised in accordance with IAS 17 *Leases*.

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. The cost of the lease and any lease incentive are charged to the statement of comprehensive net expenditure over the lease term on a straight-line basis unless another systematic basis is more appropriate.

For ship leases where NERC has the use of a ship for which substantially all risks and rewards of the asset are transferred to the Council, the assets are treated as if they had been purchased outright at the present value of the total rentals payable during the period of the lease. The corresponding leasing commitments are shown as obligations to the lessor in payables. Charges are made to the statement of comprehensive net expenditure in respect of:

- Depreciation, which is charged on a straight line basis over the shorter of its useful economic life or the lease period
- Finance charges, which are allocated over the period of the lease in accordance with the interest rate within the contract.

1.17 Contingent liabilities
Contingent liabilities are disclosed in accordance with IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*, e.g. where a potential liability is deemed to have arisen but the obligation has yet to be confirmed due to the lack of a reliable estimate or where it is not deemed probable that an outflow will ensure, unless the likelihood of an outflow is remote.

1.18 Accounting estimates and judgements
The preparation of the financial statements requires management to make key judgements, estimates and assumptions that affect the reported amounts of assets and liabilities and income and expenditure based on experience and expected events. Actual results may differ from these estimates under different assumptions and conditions. Specific policies for judgemental areas such as provisions, which include estimates of useful economic lives and decommissioning costs of Antarctic assets, are shown above.

1.19 Changes to IFRS
All International Reporting Standards, Interpretations and Amendments to published standards which are effective at 31 March 2017 have been adopted in these financial statements, taking into account the specific interpretations and adaptations included in the FReM.

Amendments to IAS 1 *Presentation of Financial Statements*, IAS 16 *Property, Plant and Equipment*, IAS 38 *Intangible Assets* and IAS 41 *Agriculture* have been adopted in 2016-17, with no material impact on NERC's financial statements.

The IASB and IFRIC have issued certain standards and interpretations with an effective date after these financial statements, which have not been applied to these financial statements. The standards most relevant to NERC are IFRS 9 *Financial Instruments*, IFRS 15 *Revenue from Contracts with Customers*, IFRS 16 *Leases* and IFRIC 22 *Foreign Currency Transactions and Advance Consideration*. These will be adopted at the effective date.

IFRS 9 *Financial Instruments* is being introduced to replace IAS 39 *Financial Instruments: Recognition and Measurement*. The new standard simplifies the classification and measurement of financial assets as well as amending when and how impairments are calculated and reported, moving from an incurred loss to an expected loss model. This will result in impairments being recognised earlier than under IAS 39. Effective date of implementation is 1 January 2018.

IFRS 15 *Revenue from Contracts with Customers* will replace IAS 18 *Revenue* and IAS 11 *Construction Contract*s, unifying the concepts in these two standards into a single model to recognise revenue as a performance obligation under a contract is satisfied. Effective date of implementation is 1 January 2018.

IFRS 16 *Leases will replace IAS 17 Leases.* The new standard amends the accounting for lessees, removing the distinction between recognising an operating lease (off-balance sheet financing) and a finance lease (on-balance sheet financing). The new standard requires recognition of all leases (which last over 12 months) to be recognised as a finance lease (on-balance sheet). Effective date of implementation is 1 January 2019.

IFRIC 22 *Foreign Currency Transactions and Advance Consideration.* The new standard covers foreign currency transactions when an entity recognises a non-monetary asset or non-monetary liability arising from the payment or receipt of advance consideration before the entity recognises the related asset, expense or income. It requires that the date of the transaction, for the purpose of determining the exchange rate, is the date of initial recognition of the non-monetary prepayment asset or deferred income liability. Effective date of implementation is 1 January 2018.

The interpretation of these standards into the FReM is currently being determined and the outcome of this work is currently not known. The potential effects of

the new standards, IFRS 9, IFRS 15 and IFRIC 22, are not anticipated to have a significant impact on the NERC financial statements. The potential effect of adopting IFRS 16 is still to be determined.

1.20 Research and development

As an organisation wholly engaged in research, NERC does not classify research and development expenditure separately in the accounts. It is reported under operating expenditure in the statement of comprehensive net expenditure.

2. Analysis of net expenditure by operating segment

NERC reports income and expenditure by segment in accordance with IFRS 8 *Operating segments*. Operating segments are funding streams about which separate financial information is available and is evaluated regularly by the chief operating decision maker, the NERC Management Board.

NERC's assets and liabilities are shared across all funding streams and therefore not separately identified and disclosed.

Analysis of net expenditure by funding stream 2016-17

	National Capability	Antarctic Logistics and Infrastructure Partition	Discovery Science	Strategic Research	Post-Graduate Training	Fellowships	Innovation	Research Centres	Other	Total
	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000
Operating Income [ii]	**(3,080)**	**(2,448)**	**(346)**	**(14,818)**	**(233)**	**-**	**(1,101)**	**(48,378)**	**48**	**(70,356)**
Expenditure										
Staff costs	2,275	15,084	106	570	3	-	877	86,386	7,660	112,961
Purchase of goods and services	13,140	19,591	22	539	55	7	489	48,211	2,767	84,821
Depreciation, amortisation and impairments	-	-	-	-	-	-	-	-	55,321	55,321
Provision expense	-	-	-	-	-	-	-	-	4,784	4,784
Grants and training awards	18,449	-	44,677	68,285	24,564	6,715	12,395	14,339	1,095	190,519
Notional service charge	-	-	-	-	-	-	-	-	5,950	5,950
Other operating expenditure	-	-	-	-	-	-	-	-	(1,869)	(1,869)
Internal transfers [i]	66,223	13	7,787	14,630	543	176	6,054	(102,623)	7,197	-
Total expenditure	**100,087**	**34,688**	**52,592**	**84,024**	**25,165**	**6,898**	**19,815**	**46,313**	**82,905**	**452,487**
Net operating expenditure	**97,007**	**32,240**	**52,246**	**69,206**	**24,932**	**6,898**	**18,714**	**(2,065)**	**82,953**	**382,131**

Notes:

i Internal transfers result from sharing of resources, internal trading and internal awards between funding streams. The overall net impact on the organisation is zero.

ii Business units receive external funding for research from the UK public sector, European Commission and private sector. In addition they receive other operating income, such as software and data sales and royalties and license fees from intellectual property.

Analysis of net expenditure by funding stream 2015-16 (re-presented)

	National Capability £000	Antarctic Logistics and Infrastructure Partition £000	Discovery Science £000	Strategic Research £000	Post-Graduate Training £000	Fellowships £000	Innovation £000	Research Centres £000	Other £000	Total £000
Operating income	**(1,348)**	**(3,929)**	**(763)**	**(14,492)**	**(122)**	**-**	**(455)**	**(47,006)**	**(1,559)**	**(69,674)**
Expenditure										
Staff costs	393	14,163	98	648	3	-	1,152	87,427	11,621	115,505
Purchase of goods and services	7,214	18,976	(45)	2,026	(13)	-	977	52,590	7,873	89,598
Depreciation, amortisation and impairments	-	-	-	-	-	-	-	-	38,922	38,922
Provision expense	-	-	-	-	-	-	-	-	4,018	4,018
Grants and training awards	22,252	4	49,327	56,241	21,577	6,590	6,454	12,485	(164)	174,766
Notional service charge	-	-	-	-	-	-	-	-	5,536	5,536
Other operating expenditure	-	-	-	-	-	-	-	-	(41)	(41)
Internal transfers	64,378	96	9,747	13,192	1,748	180	7,546	(101,813)	4,926	-
Total expenditure	**94,237**	**33,239**	**59,127**	**72,107**	**23,315**	**6,770**	**16,129**	**50,689**	**72,691**	**428,304**
Net operating expenditure	**92,889**	**29,310**	**58,364**	**57,615**	**23,193**	**6,770**	**15,674**	**3,683**	**71,132**	**358,630**

3. Staff costs

	2016-17 £000	Re-presented 2015-16 £000
Wages and salaries [i]	84,236	88,056
Social Security costs	8,832	7,214
Pension costs	19,893	20,235
Total	**112,961**	**115,505**

Note:
i Wages and salaries includes £738k of exit costs (2015-16: £3,011k), £534k (2015-16: £289k) for temporary, contracted and seconded staff and £583k (2015-16: £827k) for Agency Staff.

The total amount capitalised for staff costs in 2016-17 is £1,176k (2015-16: £641k). This relates to an estimated 16.5 full-time equivalent staff (2015-16: 8.6 FTE) who are adding value to assets, such as those engaged in project management or building of assets.

4.1 Purchase of goods and services

	2016-17 £000	Re-presented 2015-16 £000
Rentals under operating leases	436	596
Accommodation	10,261	10,818
Bank charges	35	34
Professional services	9,592	11,238
Finance and HR services	68	39
IT costs / support costs	6,097	6,029
Training and other staff costs	1,793	1,583
Travel and subsistence	10,039	8,224
Telecommunications cost	1,721	1,488
Advertising and publicity	411	387
Media and design services	2	13
Audit fees [i]	109	91
International subscriptions	3,800	3,715
Professional subscriptions	922	1,007
Postage and freight	861	905
Hire of conference facilities	1,693	1,518
Catering services	491	507
Outsourced programme management services	1,076	1,301
Miscellaneous other costs	3,323	3,268
Cost of goods sold	66	40
Losses and compensation	130	4
Other audit costs	212	168
Purchase of scientific equipment	6,107	5,955
Ships and aircraft operations	18,334	18,106
Materials, consumables and spares	7,242	12,564
Total	**84,821**	**89,598**

Note:
i Audit fees include NAO statutory audit fee of £80k (2015-16: £80k).

4.2 Depreciation, amortisation and impairments

	2016-17 £000	2015-16 £000
Depreciation	40,778	37,577
Amortisation of intangible assets	670	521
Impairment of property, plant and equipment	13,873	824
Total	**55,321**	**38,922**

5. Research and development grants

	2016-17 £000	Re-presented 2015-16 £000
Research grants [i]	123,612	112,998
Research contracts [ii]	40,905	39,152
Post graduate training awards [iii]	26,002	22,616
Total	**190,519**	**174,766**

Notes:
i 2016-17 includes £3.3m of capital grants funded through the strategic capital grant round (2015-16: nil) and £7.5m paid out of Newton funds (2015-16: £3.8m).
ii 2016-17 includes additional capital funding of £1.2m for NCAS
iii 2016-17 includes £1.8m for Centres for doctoral training (2015-16: £0.6m).

6. Operating income

	2016-17 £000	Re-presented 2015-16 £000
Current grants from European Commission [i]	8,544	7,678
Income from private sector – companies	20,328	20,302
Income from other governmental departments and public sector	29,780	29,071
Miscellaneous income [ii]	6,276	7,403
Rental income	1,192	1,751
Sales of goods and services	4,236	3,469
Total	**70,356**	**69,674**

Notes:
i Income from the European Commission consists of cash receipts of £7,056k and accrued income of £1,488k.
ii Miscellaneous income includes £2,549k (2015-16: £2,756k) of monies from the University of Southampton paid to the National Oceanography Centre concerning their joint occupation of the Waterfront Campus and £800k from the Indian Institute of Tropical Meteorology for their contribution to the FAAM 2016 Monsoon aircraft campaign.

7. Property, plant and equipment

Cost or valuation	Land [i]	Buildings and Antarctic stations	IT equipment	Plant and machinery	Fixtures and fittings	Transport [ii]	Assets under construction	Total
	£000	£000	£000	£000	£000	£000	£000	£000
At 1 April 2016	40,995	334,918	8,518	82,044	949	318,086	21,786	807,296
Additions	-	513	1,611	5,121	6	4,498	59,834	71,583
Disposals [iii]	(2,699)	(6,403)	(747)	(5,259)	-	(879)	-	(15,987)
Impairments [iv]	-	(7,434)	-	237	-	(10,170)	-	(17,367)
Reclassifications [v]	-	4,926	(167)	2,390	39	3,533	(10,925)	(204)
Revaluations	(1,040)	(375)	169	1,540	19	5,569	-	5,882
At 31 March 2017	**37,256**	**326,145**	**9,384**	**86,073**	**1,013**	**320,637**	**70,695**	**851,203**
Depreciation								
At 1 April 2016	(6,049)	(143,941)	(4,070)	(38,557)	(199)	(160,159)	-	(352,975)
Charged in year	(362)	(9,939)	(1,461)	(10,030)	(190)	(18,796)	-	(40,778)
Disposals [iii]	1,261	2,981	717	4,922	-	559	-	10,440
Impairments [iv]	-	-	-	-	-	3,494	-	3,494
Reclassifications [v]	-	-	41	5	(5)	-	-	41
Revaluations	(1,029)	684	(92)	(793)	(6)	(2,649)	-	(3,885)
At 31 March 2017	**(6,179)**	**(150,215)**	**(4,865)**	**(44,453)**	**(400)**	**(177,551)**	**-**	**(383,663)**
Net Book Value	**31,077**	**175,930**	**4,519**	**41,620**	**613**	**143,086**	**70,695**	**467,540**
At 1 April 2016	34,946	190,977	4,448	43,487	750	157,927	21,786	454,321

Notes:

i Cost or valuation includes £18,605k in respect of freehold land which is not depreciated (2015-16: £22,081k).

ii The NBV of the leased ship is £9,484k (2015-16: £12,991k). The annual depreciation charge on this asset held under the finance lease is £3,930k (2015-16: £3,576k).

iii Disposals of Land & Buildings during the year include the sale of the Edinburgh Loanhead (£1,311k net) and Murchison House (£3,550k net) properties following the relocation of BGS's Edinburgh operations to the new Lyell Centre on the campus of Heriot Watt University.
During the year 4 assets were identified which had either been lost or damaged. As a result losses amounting to £38k were recognised within the Plant and Machinery category. NERC conducts research activity in some of the most extreme environments across the globe. Whilst every effort is made to safeguard assets, the risk of loss can only be minimised, not eliminated.

iv The net impairment costs of £13,873k as shown in note 4.2 consist of impairment costs of £16,963k less the reversal of previous impairment costs amounting to £3,090k. These costs are included in the expenditure for the year in the statement of changes in taxpayer equity.
The impairments of Buildings and Antarctic Stations relate to revaluation of properties to below their depreciated historic cost, the impairment reversals reflect the revaluation of properties above their depreciated historic cost where these properties had been impaired as a result of previous valuations.
The net impairment costs are as follows:
- Halley VI Antarctic Research Base (£7,281k), Lancaster (£577k), Bangor (£322k), Wallingford (£695k) and Edinburgh Lyell Centre (£1,376k) properties being impaired to their professionally revalued amounts.
- Bush (-£266k) and Keyworth (-£2,551k) prior year impairments partially reversed due to subsequent professional revaluation.
The impairments of Plant & Machinery include £36k for an underwater sensor package for which contact was lost during the year and which does not currently deliver economic benefits; as well as the reversal of impairments for three underwater sensor packages for which contact was lost during 2015-16 and which are now deemed to be lost.
The impairment of Transport Equipment wholly relates to the reduction of the RRS *James Clark Ross* research vessel to its open market value following an impairment review of Antarctic vessels carried out as part of a wider review of NERC's Antarctic capital base.

v) Reclassifications relate to bringing into service of assets under the course of construction along with the delayed recognition of equipment elements of major building projects after the buildings have come into service and some small misclassifications of Intangible assets as IT Equipment.

Re-presented

Cost or valuation	Land	Buildings and Antarctic stations	IT equipment	Plant and machinery	Fixtures and fittings	Transport	Assets under construction	Total
	£000	£000	£000	£000	£000	£000	£000	£000
At 1 April 2015	39,300	302,337	8,098	82,796	361	307,563	11,415	751,870
Additions	-	2,249	1,539	4,488	706	2,293	34,256	45,531
Disposals	-	-	(1,218)	(8,758)	(119)	(282)	-	(10,377)
Impairments	-	-	-	(824)	-	-	-	(824)
Reclassifications	-	12,874	(5)	3,350	-	7,011	(23,885)	(655)
Revaluations	1,695	17,458	104	992	1	1,501	-	21,751
At 31 March 2016	**40,995**	**334,918**	**8,518**	**82,044**	**949**	**318,086**	**21,786**	**807,296**
Depreciation								
At 1 April 2015	(5,429)	(127,057)	(3,863)	(36,071)	(259)	(144,090)	-	(316,769)
Charged in year	(358)	(9,309)	(1,398)	(10,609)	(57)	(15,846)	-	(37,577)
Disposals	-	-	1,218	8,612	119	282	-	10,231
Impairments	-	-	-	-	-	-	-	-
Reclassifications	-	-	35	-	-	-	-	35
Revaluations	(262)	(7,575)	(62)	(489)	(2)	(505)	-	(8,895)
At 31 March 2016	**(6,049)**	**(143,941)**	**(4,070)**	**(38,557)**	**(199)**	**(160,159)**	**-**	**(352,975)**
Net Book Value as at 31 March 2016	**34,946**	**190,977**	**4,448**	**43,487**	**750**	**157,927**	**21,786**	**454,321**
At 1 April 2015	33,871	175,280	4,235	46,725	102	163,473	11,415	435,101

8. Receivables

	2016-17	Re-presented 2015-16
Amounts falling due within one year:		
Trade receivables	9,203	9,879
Other receivables	205	109
Staff receivables	61	86
Prepayments and accrued income [i]	15,316	13,990
	24,785	**24,064**
Amounts falling due after more than one year:		
Staff receivables	58	71
Total	**24,843**	**24,135**

Note:
i Prepayments are due to contractual obligations, such as international subscriptions, license and maintenance costs, many of which are due to be paid at the beginning of a calendar year.

9. Cash and cash equivalents

	31 March 2017 £000	Re-presented 31 March 2016 £000
Balance as at 1 April	**2,801**	**2,599**
Net change in cash and cash equivalent balances	(1,124)	202
Balance as at period end date	**1,677**	**2,801**
The following balances were held at 31 March:		
Government Banking Service	605	1,848
Commercial banks and cash in hand	1,072	953
Total [i]	**1,677**	**2,801**

Note:
i In addition to the above NERC holds £2,746k (2015-16: £4,745k) on behalf of 3rd party European Commission programme collaborators.

10. Payables

	2016-17 £000	Re-presented 2015-16 £000
Amounts falling due within one year:		
VAT payable	901	1,056
Other taxation and social security	2,114	2,037
Trade payables	8,576	7,520
Other payables	106	108
Accruals and deferred income	44,324	48,096
Finance lease	1,367	1,258
	57,388	**60,075**
Amounts falling due after more than one year:		
Finance lease	2,007	3,374
Total	**59,395**	**63,449**

11. Provisions for liabilities and charges [i]

	31 March 2017 £000	Re-presented 31 March 2016 £000
Balance at 1 April [ii]	**10,769**	**7,490**
Provided in the year	4,580	(80)
Provision utilised in the year	(539)	(761)
Changes in price level	57	4,026
Unwinding of discount	(84)	94
Balance at reporting date	**14,783**	**10,769**

Notes:
i The discount rate used is 0.24% for pension provisions (2015-16: 1.37%). For all other provisions the discount rate is -2.70% for 0-5 years, -1.95% for 6-10 years and -0.80% for over 10 years (2015-16:-1.55% for 0-5 years, -1.00% for 6-10 years and -0.80% for over 10 years).
ii Includes provisions for Antarctic Treaty costs representing the Council's liability to remove any items from the Antarctic no longer used.

Analysis of expected timing of discounted cashflows

	31 March 2017 £000	Re-presented 31 March 2016 £000
Provision due within one year	605	1,008
Between one and five years	1,679	1,267
Between five and ten years	2,615	40
Later than ten years	9,884	8,454
Total	**14,783**	**10,769**

12. Commitments

12.1 Forward commitments on approved research grants, contracts and training awards

	31 March 2017 £000	31 March 2016 £000
Within one year	170,586	161,774
Between one and five years	189,118	159,388
Later than five years	31	203
Total	**359,735**	**321,365**

12.2 Finance lease obligations

	31 March 2017 £000	31 March 2016 £000
Within one year	1,367	1,258
Between one and five years	2,007	3,374
Total	**3,374**	**4,632**

12.3 Operating lease commitments

	31 March 2017 £000	31 March 2016 £000
Within one year	286	327
Between one and five years	315	419
Later than five years	8,930	9,019
Total	**9,531**	**9,765**

12.4. Capital commitments

As at the date of these accounts, NERC is committed to a sum of £93.2m in respect of major capital contracts, which includes £92.1m for the New Polar Research Vessel due to be completed in 2019-20.

12.5. International subscriptions

NERC has commitments of £3,221k for international subscription costs, which includes £1,950k for the Integrated Ocean Drilling Programme and £672k for the International Institute for Applied Systems Analysis for the period to 31 March 2017.

12.6. Bonds and guarantees

The Council has a number of bonds and guarantees relating to overseas contracts, amounting to £1,139k at 31 March 2017 (2015-16: £1,094k). These are lodged with Lloyds Bank. The costs of these bonds and guarantees are borne by external customers.

13. Related party transactions

NERC is a non-departmental public body sponsored by BEIS.

BEIS is regarded as a related party. During the year, NERC has had various material transactions with BEIS and with other entities for which BEIS is regarded as the parent Department, viz: Engineering and Physical Sciences Research Council, Biotechnology and Biological Sciences Research Council, Science and Technology Facilities Council, Medical Research Council, Economic and Social Research Council, Arts and Humanities Research Council, Innovate UK, Higher Education Funding Council for England, UK Space Agency and UK SBS. NERC has had various transactions with other Government departments and other central Government bodies.

During the year NERC made no research grant payments to Council members.

There have been no material transactions with any children, spouses or partners of Council members that require disclosure.

NERC made the following aggregated payments in respect of NERC funded awards or contracts to Institutions where Council members are also senior members of staff.

Institution	Amount £000	Related party
University of St Andrews	1,246	Professor Ian Boyd
Lancaster University	4,180	Professor Louise Heathwaite
University College London	6,103	Professor Dame Georgina Mace DBE
University of Bristol	8,025	Professor Guy Orpen
Cranfield University	1,875	Professor Ian Poll OBE
Met Office	1,308	Professor Dame Julia Slingo DBE
University of Edinburgh	6,778	Professor Lesley Yellowlees CBE

No Council members were involved in the approval of awards to the institution where he/she is a senior member of staff.

14. Events after the reporting period

In accordance with the requirements of IAS 10 *Events after the Reporting Period*, post Statement of Financial Position events are considered up to the date on which the Accounts are authorised for issue. This is interpreted as the same date as the date of the Certificate and Report of the Comptroller and Auditor General. On 27 April 2017 the Higher Education Research Bill received royal assent. This forms the basis of the formation of UK Research and Innovation. There are no other post Statement of Financial Position events between the balance sheet date and this date.

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ISBN 978-1-4741-4533-6