



Natural
Environment
Research Council

Minutes of the 14th meeting of NERC Council in UK Research and Innovation (redacted)

NATURAL ENVIRONMENT RESEARCH COUNCIL

Fourteenth meeting of NERC Council in UK Research and Innovation held at the British Antarctic Survey, Cambridge on Thursday, 23 September 2021.

Members present:

Professor Sir Duncan Wingham (Executive Chair), Nick Folland (Senior Independent Member), Professor Hannah Cloke (part), Dr Matthew Harwood (via Zoom), Professor Sir Stephen Holgate, Professor Karin Lochte (via Zoom), Michael Lewis, Clare Matterson, Gordon McGregor, Professor John Pyle, Professor Gideon Henderson, CSA, Defra (part), Professor Graham Underwood, Chair, Science Committee (via Zoom)

NERC/UKRI Directors (Head Office): Nigel Bird (Director, Major Projects), Alison Robinson (Deputy Executive Chair), Professor Susan Waldron (Director, Research and Skills), Dr Iain Williams (Director, Strategic Partnerships)

Apologies: Judith Batchelar, Rebecca Heaton, Sue Donaldson, Victoria McMyn

Other attendees: Emma Lindsell for item 4, Robyn Thomas for items 7 and 11, Avril Allman for item 7, Stephen Mobbs for item 8, Dame Ottoline Leyser for item 10, Katie Tearall for item 11

Secretariat: Helen Page, Eleanor Oates

Introductory items

1. Executive Chair's welcome and introductions (Oral)

1.1 Duncan Wingham welcomed members to the fourteenth meeting of NERC Council, especially Hannah Cloke, Michael Lewis and John Pyle who were attending their first meeting in person. Apologies had been received from Judith Batchelar and Rebecca Heaton.

1.2 Duncan Wingham congratulated those in the environmental science community who had been recognised in this year's Queen's Birthday Honours including:

- **CBE: Professor Bill Sutherland, Miriam Rothschild Professor, Conservation Biology, University of Cambridge**, for services to evidence-based Conservation
- **OBE: Paul Fox, Pro-Vice Chancellor, Bath Spa University and lately NERC Chief Operating Officer**, for services to Scientific Research
- **OBE: Professor Jane Memmott, Professor of Ecology, University of Bristol**, for services to Insect Pollinators and Ecology
- **OBE: Professor Michael Benton, Professor of Vertebrate Paleontology, University of Bristol**, for services to Paleontology and to Community Engagement
- **OBE: Dr Andy Clements, Lately Chief Executive Officer, British Trust for Ornithology**, for services to Conservation and Policy

- **OBE: Professor Gavin Siriwardena, Head of Terrestrial Ecology, British Trust for Ornithology**, for services to Biodiversity in the UK
- **MBE: Clegg Bamber, Futures and Business Engagement Manager, NERC Head Office** for services to education.

Duncan Wingham reminded members that proposals from Council members for future honours were always welcomed.

- 1.3 Duncan Wingham asked members for any updates to their declared interests or any vested interests in the items being discussed today. None were declared.
- 1.4 Duncan Wingham asked members for any amendments and matters arising from the minutes of the previous meeting. No amendments were made, and the minutes of the thirteenth meeting were confirmed as a good record.
- 1.5 Duncan Wingham advised that the majority of the actions listed on the Decisions and Actions paper were completed or on the forward agenda. Duncan Wingham informed Council that, were funding for international activity to be confirmed as part of the Spending Review settlement, he proposed to use this funding to work with the Helmholtz Association and asked for agreement from Council to pursue this which was agreed. This action will now be closed.
- 1.6 Duncan Wingham asked Alison Robinson to provide an update on establishing the Shadow Council. Alison Robinson explained that an action plan was currently being produced and that she expected the Shadow Council to be established by September 2022. She added that it had been suggested the group be renamed as an Advisory Council and it was agreed to close the action.

Action: An Advisory Council to be established by September 2022

2. Executive Chair's update (Oral)

- 2.1 Duncan Wingham gave an oral update on some of the key activities since the previous Council meeting.

i. Equality, Diversity and Inclusion (EDI)

Duncan Wingham asked Alison Robinson to provide an update on a range of initiatives which had taken place recently. Alison Robinson explained that NERC had held a series of community diversity roundtables to hear from people with lived experience and a report on the outcomes of the roundtables had been published in August 2021. She acknowledged that the feedback included recommendations for improvements to be made by NERC but that the community had welcomed the dialogue and the effort being made to address these issues. As part of this activity, some grant calls had been issued: a joint NERC/AHRC call 'Hidden Histories', which was a programme seeking to address the legacy of colonialism in environmental sciences; a NERC-led digital hackathon focused on accessibility in the digital landscape and an EDI enrichment call. A NERC EDI action plan was being produced which would include grant operations, staffing, employment and governance considerations and how we might work in partnership with the community.

In response to a query from Council on the level of data NERC currently holds, Alison Robinson confirmed that NERC has a baseline data set for funding operations for comparison; a staff baseline was in progress and that it would be important to work closely with universities to improve the quality of the information on community diversity as the only data currently available was from HESA. She added that a first step on improving community diversity data would be the roundtable planned for October when Duncan Wingham and Ottoline Leyser

would meet with leading institutions to identify some joint actions. Duncan Wingham added that there was better information on grant processes which currently did not show any evidence of bias although there was more work to be done on exploring the diversity of the population who could apply in contrast to those that do apply.

ii. Open Access

Duncan Wingham informed Council that the UKRI Board had approved the UKRI Open Access Policy which had been published in August 2021 and would apply to peer-reviewed research articles submitted for publication on or after 1 April 2022 which would now be open from date of publication. He added that a series of roadshows were planned to promote this change to the scientific community to ensure they published consistently in line with the new policy.

Nick Folland extended thanks, on behalf of Council, to Duncan Wingham for a successful outcome to what had been a complex process.

Council asked whether there was a common international approach on open access and Duncan Wingham confirmed that there was not a consistent international approach but the UKRI policy was consistent with the approach at Wellcome and by the European Union.

iii. Simpler and Better Funding

Duncan Wingham explained that a range of pilot schemes across the research councils would take place over the Autumn 2021

iv. COP26

Alison Robinson provided an update on progress with the plans for COP26. She explained that there had been successful collaboration across UKRI with a confirmed presence across both green and blue zones at COP26. Alison Robinson added that there were plans to bring the RRS *Sir David Attenborough* to London between 28-30 October with a range of stakeholders expected to attend, including Council members. She added that she was the Senior Responsible Owner for the Science and Innovation Day at COP26 and would be seeking to showcase UKRI and NERC science including 'keeping 1.5 alive' with a focus on both mitigation and adaptation as well as celebrating researchers and innovators.

v. RRS *Sir David Attenborough*

Duncan Wingham advised Council that the RRS *Sir David Attenborough* would enter service on 30 October. He highlighted that there would be a higher level of operational risk in Antarctica this year than usual and invited Nigel Bird to summarise the key risks. Nigel Bird explained that there were a range of risks associated with the first journey of the ship to Antarctica. He reminded Council that the intercontinental aircraft was due to be replaced and explained that, due to limited flight time over the past year, it would require more servicing and that replacement parts were becoming harder to source. He added that NERC were mitigating the risks by: reducing activity to the minimum; considering how best to quarantine staff due to limited accommodation in the Falklands; ensuring all staff had received pre-deployment training and planning for potential supply chain disruption. Duncan Wingham added that the RAF link to the Falklands would be key with the closure of Punta Arenas airport due to COVID.

vi. The Life Scientific

Alison Robinson highlighted to Council that Professor Hannah Cloke was due to appear on the Life Scientific, BBC Radio 4 on 5 October 2021.

3. Update from Chief Scientific Adviser, Defra (Oral)

3.1 Gideon Henderson explained that his update would focus on five areas:

i. Innovation

Gideon Henderson advised that the Department for Business, Energy and Industrial Strategy (BEIS) had published its UK Innovation Strategy in July 2021 which had included four key actions: unleashing business; people and talent; institutions and places; missions and technologies. He explained that the definition of 'missions' was the identification of a societal problem along with potential solutions and he commented that Defra and BEIS had initiated discussions on some potential missions to explore which included agriculture, bio economy, resources and waste and critical metals. He added that, whilst innovation remained a key priority for Government, the CSAs were continuing to promote the importance of fundamental research.

ii. Net Zero

Gideon Henderson explained that there was considerable activity within Government on how to achieve net zero and what research might be needed as part of the Spending Review. As part of this, Defra had bid for funding to research four areas of concern: emissions on peat, trees, livestock and biomass and he confirmed that Defra were working with UKRI to make sure their bids were complementary with a view to working collaboratively to develop ideas on net zero once the Spending Review outcome was known.

Gideon Henderson added that a net zero strategy was due to be published by BEIS in the autumn along with a net zero science and innovation framework.

iii. Food Strategy

Gideon Henderson informed Council that the Government was due to publish a white paper in the Autumn based on the independent Dimpleby report which had been published in July 2021. He outlined some of the recommendations from the Dimpleby report which included: better use of data in the food system; research into understanding what works/doesn't work to improve the food system and consideration of innovation. He added that the Government response to the consultation on gene editing would be announced w/c 27 September 2021.

iv. COP26

Gideon Henderson advised Council that Defra was leading on the nature day where there would be a focus on biodiversity.

v. Defra

Gideon Henderson informed Council that Defra had increased its portfolio with the addition of a new Minister, Jo Churchill, who would be responsible for gene editing and net zero. He added that Liz Truss had moved to the Foreign, Commonwealth and Development Office and Michael Gove had moved to the, recently re-named, Department for Levelling Up, Housing and Communities (DLUHC). Gideon Henderson advised Council that a £100 million UK seafood fund for seafood/fisheries innovation had been announced on 11 September 2021 which was industry focused. He added that there were two pending Defra strategies on GB plant biosecurity and non-native species.

3.2 Council asked whether there was a common Government approach to food waste and Gideon Henderson commented that this was a local council level responsibility although Defra was seeking funding through the Spending Review to also address this issue.

3.3 Council commented that the World Health Organization had recently announced new air quality guidelines and highlighted a concern that some of the climate change strategies might result in a decrease in air quality, particularly indoors. Gideon Henderson confirmed that this was a concern for Defra although it was broader than air quality and included interaction between the environment and health. Duncan Wingham added that there were difficulties in working in partnership on these issues and Gideon Henderson suggested that it might be useful to engage with Professor Lucy Chappell, CSA, Department of Health and Social Care

(DHSC) as the department was currently scoping the breadth of their remit.

Items for discussion

4. UKRI update (Oral) *Slides, item 4*

- 4.1 Duncan Wingham welcomed Emma Lindsell to her first NERC Council meeting.
- 4.2 Emma Lindsell presented slides to provide an update on both the formulation of the first UKRI Strategy and the UKRI Spending Review bid.
- 4.3 Emma Lindsell informed Council that UKRI were currently preparing a five-year strategy, commissioned by the Secretary of State, and were consulting widely across UKRI and with the community. The UKRI Strategy would be linked to the outcome of the Spending Review and be reflected in, and implemented through, the forthcoming refresh of the research council Delivery Plans. She informed Council that the current draft of the Strategy was built around five strategic pillars: fostering a world class Research and Innovation system; supporting great ideas; unleashing innovation; targeting national priorities; improving how we work.
- 4.4 Emma Lindsell added that the implementation of the strategy would be underpinned by four guiding principles:
 - i. Increasing connectivity
 - ii. Increasing diversification
 - iii. Improving resilience
 - iv. Broadening engagement
- 4.5 Emma Lindsell advised Council that the Spending Review had launched on 7 September 2021 and that BEIS/UKRI had submitted their bid shortly afterwards. She commented that there had been an enormous amount of effort and collaboration across UKRI to frame the best possible settlement by demonstrating how investment in UKRI would contribute to the Government priorities. It was anticipated that UKRI would receive a three-year settlement which would provide greater flexibility and improve strategic planning. She added that the research part of the budget would include both core funding and funding which was previously allocated to the National Productivity Investment fund (NPIF) which would be replaced by new programmes that would build on the success of the previous schemes.
- 4.6 Duncan Wingham echoed Emma Lindsell's observation that preparing the bid had required considerable effort across the organisation and thanked all of those involved.
- 4.7 Council asked whether the process with BEIS might have an impact on the devolved administrations and whether it would be possible to provide more detail on the programmes which might replace NPIF. Emma Lindsell responded that BEIS and UKRI were in close contact with colleagues in the devolved administrations and were working to ensure the breadth of talent across the UK was supported. She confirmed that, whilst NPIF was unlikely to continue in its current form, any new programmes would draw on the experience and evaluation of running these programmes and would continue to fund similar research and innovation priorities. She added that Council would have an opportunity for further engagement in shaping these funds in the future.
- 4.8 Council congratulated Emma Lindsell on a clear and comprehensive framework for the UKRI Strategy and asked whether the implementation and delivery would provide opportunities for greater integration across the research councils in areas such as health and environment. Emma Lindsell responded that there were ongoing discussions on how to build greater connectivity across the organisation which would be helped by the formulation of the strategy and the UKRI

corporate plan which would be drawn from the individual council Delivery Plans.

- 4.9 Council asked where people and training were considered in the presentation, to better reflect the role that UKRI plays in developing the talent and skills which the innovation and science system will need. Emma Lindsell confirmed that UKRI had an ambition to support the pipeline of talent and to implement the recently published Research and Development People and Culture Strategy and confirmed this was a core part of the UKRI vision which she would ensure came through more clearly in future discussions and be better reflected in the presentation.
- 4.10 Council asked whether the current funding trajectory would be sufficient to reach 2.4% of Gross Domestic Product (GDP) by 2027 and Emma Lindsell confirmed this would be challenging.
- 4.11 Duncan Wingham thanked Emma for her presentation and wished her well, on behalf of Council, with the Spending Review.

5. NERC Spending Review approach (Oral), Slides, item 5

- 5.1 Duncan Wingham introduced this item and presented slides to set the context for the NERC approach to the Spending Review, noting that NERC had not been asked to submit a bid, but had significantly contributed to the single UKRI bid
- 5.2 Duncan Wingham explained that his update would focus on: the case for funding for net zero; the NERC related elements of the UKRI Spending Review bid; the NERC settlements for 2021/22 and 2022/23 and how these relate to the requested budget uplift for Discovery Science contained within NERC 21/27 for discussion later in the meeting and potential implications for the National Capability (NC) portfolio.
- 5.3 Duncan Wingham provided an overview of the Spending Review process and explained that the BEIS bid, of which UKRI was one element, was currently being studied by HM Treasury. He added that allocations from HM Treasury to BEIS were expected by the end of October before any allocation was made to UKRI and that NERC allocations were not expected until late November/early December at the earliest. Duncan Wingham confirmed that NERC would receive two allocations: NERC core remit and Antarctic Logistics and Infrastructure (ALI) partition.
- 5.4 Council asked whether there would be a requirement to bid for funding on an annual basis and Duncan Wingham confirmed that UKRI were expecting a multi-year settlement of three year
- 5.5 Duncan Wingham summarised the UKRI element of the net zero bid and explained that HM Treasury had introduced a new net zero research and innovation line which was outside of the UKRI bid. He explained that there were three programmes outlined in the bid: systems approaches; de-risking the last 20% of emissions; unlocking solutions and private investment and that consideration had been given to how resource would be distributed and the ratios for private sector investment.
- 5.6 Duncan Wingham presented a slide on the NERC Spending Review proposition 2021 which summarised the NERC approach to the Spending Review, highlighting ongoing investment in the foundations mapped out in the Delivery Plan and the requirement for continued funding for National Capability. He added that a range of investment opportunities were proposed subject to available funding: adapting to our changing climate; ensuring the UK supply of critical minerals; clean agriculture and increased biodiversity; digital technologies; leadership of environmental solutions and the health of our marine environments. Duncan Wingham explained that the timing of the Spending Review, which was happening in parallel to COP26, provided a unique opportunity to highlight environmental science.

6. Trusted Research (NERC 21/26) *Slides, item 6*

- 6.1 Alison Robinson introduced this item and explained that its purpose was to outline the UKRI and NERC approach to Trusted Research in order to raise Council awareness of this topic and to provide Council with an opportunity to steer the NERC approach. She added that there was no intention of stopping international collaboration, the emphasis of the work was to ensure the academic community were aware of any potential risks involved in working in some areas of research internationally.
- 6.2 Alison Robinson informed Council that NERC were currently conducting a risk assessment across its portfolio and presented a slide to illustrate some of the identified risks and mitigations to date, noting that these might develop as the risk assessment progressed. She added that the intention was to use the understanding of risks in the NERC portfolio to develop and roll out a training programme to staff and NERC grant holders, both to raise awareness generally and to provide more specific training and guidance for those working in higher risk areas of research.
- 6.3 Council noted the paper and asked whether NERC had identified a particular risk related to the rapid turnover of PhD students who had access to a wide range of information. Duncan Wingham commented that the intention was to ensure researchers acted responsibly and were aware of any potential risks of working with international partners.
- 6.4 Council highlighted that there were a range of training courses already available which might be a useful starting point for UKRI.

7. Simpler and Better Funding: reshaping our Discovery Science portfolio for excellence (NERC 21/27) *Slides, item 7*

- 7.1 Susan Waldron introduced this item. Robyn Thomas and Avril Allman observed.
- 7.2 Susan Waldron presented slides to illustrate the breadth of NERC Discovery Science and how the new Discovery Science portfolio would be rolled out and informed Council that they were being asked for their agreement for the following:
 - i. To replace the standard grant scheme with a refined Pushing the Frontiers scheme.
 - ii. To introduce a new Exploring the Frontiers scheme.
 - iii. To support a further Large grant annually.
 - iv. To increase the urgency grant limit to £0.1 million.
 - v. To support these changes by an uplift of £15 million in total to the Discovery Science budget.
- 7.3 Susan Waldron explained that the Exploring the Frontiers scheme would be for smaller grants of a shorter duration, to still support science excellence, enabling research outcomes to be reported sooner, without any loss of quality or impact of the research.
- 7.4 Council was content with the proposal to move the standard grant scheme to the refined Pushing the Frontiers scheme and welcomed the increase in funding for Discovery Science. **Decision: Council agreed that the standard grant scheme be replaced with the Pushing the Frontiers scheme , together with the adjustments to large and urgency grants. Council approved the uplift to the Discovery Science budget.**
- 7.5 Council expressed some support for the Exploring the Frontiers scheme which was innovative and provided a way of testing new ideas in a flexible way but raised the following concerns:
 - i. The lack of consideration of EDI and potential impact on people including with regard to job stability and job satisfaction.

- ii. The potential pressure on researchers to publish papers in a short timeframe.
- iii. The one-year duration of the scheme which might result in difficulties recruiting good post-docs.
- iv. The unintended consequences of the scheme, such as the possibility of larger follow-on grant applications.

7.6 In response to the final concern raised, Council asked whether NERC might consider ways to fund grants more quickly. Duncan Wingham commented that this might be achieved by a move to board/panel review instead of the current process of peer review.

7.7 Council commented that the Pushing the Frontiers scheme had been reduced from four years to three years and, alongside the concerns around the duration of the Exploring the Frontiers scheme, suggested that Pushing the Frontiers have a duration of three to four years and Exploring the Frontiers one to two years.

7.8 Susan Waldron confirmed that the Pushing the Frontiers scheme would support grants of more than three years. She added that Exploring the Frontiers provided up to £100,000 which could be used flexibly by the researcher, for example, a field and analytical intensive project may be used for PI and technical resource, and that, whilst there would only be one call for Exploring the Frontiers annually, the funding period was also flexible. In addition, EDI was an important consideration for NERC and in constructing the Announcement of Opportunity, an Equality Impact Assessment (EqIA) would be carried out and adjustments made if necessary. She noted that Exploring the Frontiers would not be demand managed.

7.9 Graham Underwood commented that Science Committee (SC) had discussed Discovery Science funding often over the past few years and the proposed changes to Discovery Science aligned with their thoughts. He particularly welcomed the inclusion of co-investigators on the Pushing the Frontiers scheme which helped to address EDI and career development issues previously raised by SC. He suggested that, whilst the sum of money was capped, the length of time should be more flexible which would help to address the concerns raised about Exploring the Frontiers being a one-year scheme. Finally, he commented that the move to a board/panel review system would be welcomed as long as the community had confidence in the composition of the panel.

7.10 In summary, Duncan Wingham welcomed the input from Graham Underwood which presented a broader cross section of scientific views and confirmed that the grants were primarily determined by funds rather than time commitment. He added that the Exploring the Frontiers scheme's main purpose was to provide opportunities for exploring and testing ideas rapidly and acknowledged that it would be important to balance the effort in review with the amount of the award. Duncan Wingham suggested that a move to board/panel review for Exploring the Frontiers on a trial basis be agreed and that the outcome of the trial be reported to Council before embedding this in the Discovery Science portfolio.

7.11 Council agreed to the suggestion of piloting the Exploring the Frontiers scheme and highlighted the importance of communicating this to the community and providing examples around the purpose of the schemes. Duncan Wingham suggested that any communication to the community be circulated to Council members and Science Committee for comment in advance which was agreed.

Decision: Council agreed to pilot the Exploring the Frontiers scheme
Action: Communication surrounding the Exploring the Frontiers scheme to be shared with Council and Science Committee for comment.

7.12 Council suggested that board/panels might be elected for certain subjects to build trust in the review system and Duncan Wingham agreed to consider construction of the board/panels more widely in the future.

7.13 Finally, Duncan Wingham added that any adverse impact on EDI due to the proposed changes to Discovery Science would be monitored closely and appropriate action taken.

8. NERC Digital Strategy (NERC 21/28) (Slides, item 8)

8.1 Iain Williams introduced this item using slides to illustrate the scope of the strategy. Stephen Mobbs, National Centre for Atmospheric Science (NCAS) observed this item.

8.2 Iain Williams explained that this was the first NERC digital strategy and it was being produced in response to growing cross-UKRI governance of its digital infrastructure, the need to drive progress on the Digital Environment theme within the NERC Delivery Plan and that key decisions would need to be made over the next year including on the future of NERC data centres and JASMIN. He informed Council that UKRI were developing a digital strategy which NERC would be closely involved in shaping and delivering and presented a slide that detailed the UKRI vision for a national Digital Research Infrastructure.

8.3 Iain Williams expressed his thanks to Stephen Mobbs for developing the strategy with broad engagement from the NERC digital science community. Iain Williams noted that informal feedback had been sought from key stakeholders, including the Met Office, who had confirmed that the strategy was broadly in line with their approach.

8.4 Council was very supportive of the strategy and made the following comments:

- i. The importance of interfacing data from across the research councils.
- ii. Ensuring the research technical profession was appropriately rewarded and recognised.
- iii. The importance of consideration of cyber security and GDPR issues which should be included in the digital strategy.
- iv. The communication aspects including making the wording clearer for non-data experts.
- v. Further consideration of talent and skills.

8.5 Iain Williams responded that it was important to link data from across the UKRI domains and UKRI was working collaboratively on the digital front to help to facilitate this more effectively. He added that encouraging reward and prestige for the technical professions would be crucial.

He acknowledged that it would be useful to include some additional wording in the strategy around cyber security and GDPR.

8.6 In summary, Duncan Wingham noted that the strategy was welcomed by Council. He acknowledged the importance of recognising that the technical professions were in high demand and highlighted the importance of bringing out the modern data approaches and further emphasising the data security issues. Finally, he added that communications would be important and the wording might be made clearer so that the strategy was understood by non-data experts. He confirmed that the strategy would be published by the end of 2021 and expressed his thanks to all those involved.

Decision: Council approved the NERC Digital Strategy

8.7 [Gideon Henderson left the meeting].

9. Leadership of UKRI Environmental Sustainability Strategy and NERC pathway to Net Zero + (Oral) (Slides, item 9)

9.1 Nigel Bird introduced this item and presented slides. He informed Council that this was an operational, rather than a scientific, strategy and commented that Duncan Wingham and Alison Robinson had taken a leadership role in developing the strategy for UKRI and that he would be responsible for delivering the strategy.

- 9.2 Nigel Bird clarified that the UKRI strategy remained net zero plus and outlined the timeframe and the ambitions and informed Council that a plan would be formulated from 2022 onwards to provide some detail on how to deliver the plan across UKRI.
- 9.3 Nigel Bird outlined some near-term actions for NERC and illustrated the baseline carbon emissions by source and highlighted some activity around scoping a programme to transform oceanographic research. Nigel Bird provided some practical examples on the route to net zero based on BAS activity: solar panels generating electricity; hydro power plant in South Georgia and increased automation at Halley.
- 9.4 Nigel Bird detailed some of the risks and issues which might arise in developing a plan to get to net zero by 2040 including dependencies, for instance, in aviation and resistance to the changes in behaviour which would be required. He added that he would be preparing a costed, more detailed plan for the next five years to start to understand what might be needed within the next five years before putting the plan into action.
- 9.5 Council queried whether NERC should be looking to achieve net zero earlier than 2040 and raised the reputational risk if NERC was slow to achieve a meaningful reduction in emissions. Nigel Bird responded that 2040 was the target contained within the UKRI Strategy and added that, although it might be delivered earlier than 2040, it would require a change in technology to ensure no disruption to the research outcomes of UKRI. Council noted that NERC would benefit from implementing a clear communication plan, including interim milestones.
- 9.6 Council suggested that carbon accounting might help to bring about culture change. Nigel Bird responded that UKRI were working toward a systematic consideration of the different carbon outcomes of the business cases being considered for large pieces of infrastructure and this should be addressed by being considered at the outset rather than offsetting afterwards. He added that UKRI did not yet have an approach for carbon accounting but would seek to adopt one.
- 9.7 Council asked whether the NERC research centres were included within the figures presented and it was confirmed that they were although the data centres were included in university calculations. Duncan Wingham added that further work was required to determine responsibilities in reporting carbon emissions for services which were provided to a wide range of users.
- 9.8 Duncan Wingham confirmed that there was a line of capital within the Spending Review to help with this issue and that the Executive Committee (ExCo) had recently agreed that business cases needed to address net zero better in future and that there was increasing recognition that achieving net zero needed to be a mandatory, rather than desirable, requirement.
- 9.9 Matthew Harwood and Michael Lewis offered to share some insights with Nigel Bird based on their experiences in this area.

10. Dame Ottoline Leyser (Oral)

- 10.1 Duncan Wingham welcomed Dame Ottoline Leyser to NERC Council and invited her to say a few introductory remarks before inviting questions from Council.
- 10.2 Ottoline Leyser informed Council that UKRI, which had been formed in 2018, was in the process of examining and evaluating its effectiveness. She explained that a key consideration was to ensure UKRI both preserved the strong identities of its nine constituent bodies and empowered and supported those bodies to focus on their scientific areas whilst enabling the synergistic interactions between them which would deliver the aims of UKRI. She added that UKRI was formulating an operating model to provide a framework for ensuring that UKRI was connected as an organisation to fully realise its benefits. Ottoline Leyser commented that NERC was central to

this activity and reminded Council that Duncan Wingham was leading on the Simpler and Better Funding system, on behalf of UKRI, which would make it easier to apply for cross-council funding in the future. She added that net zero had also provided an opportunity for collaborative, interdisciplinary working and highlighted the ongoing importance of a culture within UKRI that prioritised opportunities for working with colleagues across the organisation to address pan disciplinary research goals and to share best practice.

- 10.3 Council asked how best to create the interdisciplinary teams required to deliver UKRI science and asked whether this relied on self-assembly or intervention to ensure excellence. Ottoline Leyser commented that interdisciplinarity had multiple meanings and the approach should vary depending on what type of interdisciplinarity was required but might include bottom up or top-down approaches, such as in challenge led areas, or a combination of both approaches.
- 10.4 Council asked how the success of the Global Challenges Research Fund might be taken forward into a revised programme. Ottoline Leyser commented that the unprecedented cut to the Official Development Assistance (ODA) programme had been challenging and she thanked the organisations who had provided funding to allow some of the programmes to continue. She added that the Spending Review bid had included a request for an increase in international collaboration funding which would be more flexible than ODA and less vulnerable to any sudden decrease although consideration would also need to be given to how any future ODA money might be best utilised including options for substituting funding in future.
- 10.5 Council commented that the model of UKRI which comprises a range of disciplines working both independently and collaboratively might provide an exemplar for Government to explore the co-benefits of working together and whether UKRI might have a role to play in sharing best practice. Ottoline Leyser agreed and advised Council that UKRI already worked across a range of Government departments on Research and Development (R&D) programmes, forming good relationships with the CSA network and was already encouraging collaboration in cross-government departments when overlapping priorities were identified. She added that the Office for Science and Technology Strategy, led by Sir Patrick Vallance, would also provide a cross government route for addressing the major challenges.
- 10.6 Council asked Ottoline Leyser what she saw as the top priorities which would differentiate the UK on a global stage in terms of innovation. Ottoline Leyser commented that her role required her to take a broad view and that elements which were integrative requiring multiple interventions across the system such as data and computation and technological advances were key. She added that it would be important for UKRI to support progress in innovation by capturing the benefits of new technology.
- 10.7 Council asked what funding was anticipated to succeed the Strategic Priorities Fund (SPF) which had provided an excellent opportunity to translate research into public benefit. Ottoline Leyser responded that both the Industrial Strategy Challenge Fund and SPF, which had both been challenge led, had been successful schemes and it would be important to learn from and improve any future offering. She added that improving cross-government consideration of R&D priorities was important and so one possible route for continuation of the Strategic Priorities Fund might be through Government department R&D budgets although it would also be useful to have central funds to co-ordinate activity and the BEIS Spending Review bid had contained an element of funding to draw together this activity across Government Departments which would be subject to the outcome of the Spending Review.
- 10.8 Council asked how UKRI might enable change in research culture and Ottoline Leyser commented that this was a key priority for UKRI, for example, considering how to define and assess excellence and to consider a wider range of outputs and contributions to support change in research culture.

10.9 Duncan Wingham thanked Dame Ottoline Leyser for her attendance at NERC Council.

11. Reviewing the balance of the Talent and Skills portfolio to best support UK Environmental Science (NERC 21/29) Slides, item 11

11.1 Susan Waldron introduced this item and explained that the intention was to return to Council with a more comprehensive paper in 2022. Council were being asked to advise on the information which they would find most useful for the discussion next year on the structure and priorities for the Talent and Skills portfolio.

11.2 Susan Waldron provided an overview of the drivers to reviewing the Talent and Skills portfolio such as whether there needed to be training for more technical careers. She informed Council that 80% of the portfolio currently supported students and Doctoral Training Partnerships (DTPs) with a smaller number of Centres for Doctoral Training (CDT) and one of the key questions for Council to explore next year might be whether the balance was appropriate.

11.3 Council asked that the wider discussion include consideration of training to address the lack of digital skills and it was agreed to bring back some specific proposals next year.

12. NERC Council outcome of annual self-assessment (NERC 21/30)

12.1 Nick Folland introduced this item and thanked members for their engagement with the exercise.

12.2 Nick Folland highlighted some of the areas where improvements might be made, noting, however, that a return to meeting in person would help to address some of the issues raised this year particularly with regard to establishing relationships:

- i. Opportunities to provide input into the Spending Review and the forthcoming re-fresh of the NERC Delivery Plan, which would take place once the outcome of the Spending Review was known, would provide Council with more opportunities for input in formulating strategy.
- ii. There was an open invitation for Council members to observe a meeting of Science Committee to help to improve interaction between Science Committee and Council and increase understanding of the remit of the Science Committee.
- iii. A recruitment exercise for new Council members was currently underway with a focus on improving membership in terms of EDI.
- iv. The rolling programme might be reviewed with one suggestion being that this item might be moved to earlier in the meeting and be led by Nick Folland to provide independence.
- v. It might be assumed that papers had been read to decrease the time spent on introducing items.

12.3 In response to these suggestions, Council commented that they would prefer to retain the introduction to the papers although it was suggested that the finance and risk papers might be moved earlier on the agenda occasionally to ensure they were given sufficient time for discussion.

12.4 Duncan Wingham suggested that, rather than routinely adjusting the rolling programme item, a session be held at March Council each year, following the Council retreat, to formulate a rolling programme for the following financial year and Council members agreed with this suggestion.

Action: a discussion to be scheduled each March to formulate the rolling programme for the following financial year

12.5 [Hannah Cloke left the meeting at 14:45].

13. NERC financial outturn 2021/22 and draft budget 2022/23 (NERC 21/31)

13.1 Nigel Bird introduced this item and reminded Council that they had previously delegated responsibility to the Executive to utilise the available headroom in 2021/22. Nigel Bird confirmed that action had been taken to invest the funds and it was anticipated that the majority of the available headroom would be utilised as planned. He added that the budget was broadly balanced on resource and capital for this financial year.

13.2 Council commented that the finance paper contained a lot of complex information and asked whether a simpler overview might be provided in future to make it easier to understand. Duncan Wingham explained that the information provided was comprehensive to ensure Council were well informed. He added that the finance paper highlighted the most relevant points which Council needed to be aware of and added that it would be useful for members to also review Annexes C/D which provided information on the available headroom.

14. Review of the Top Risks at September 2021 (NERC 21/32)

14.1 Nigel Bird introduced this item and highlighted that some new risks had been added to the register following a review by the Executive and one risk had been escalated related to the forthcoming season in Antarctica. He added that some of the risks had been reduced due to the mitigations put in place and some de-escalated since Council last met and these risks now sat at directorate level.

14.2 Council were content with the risk report and no further comments were made.

15. Minutes of the NERC Assurance Board (NERC 21/33)

15.1 Nick Folland introduced this item and advised Council of some of the highlights from the meeting held in August 2021.

15.2 Nick Folland gave a summary of the items discussed including: the Executive update which included discussions on the Spending Review and Open Access; identification of a new risk around a potential failure to respond to the efficiencies challenge; Risk Management including the risk around achieving net zero; operational risk of ensuring COVID did not reach Antarctica; Funding Assurance Programme; Deep Dive on ship operations including governance, operational risks and EDI considerations; NERC Assurance Framework which included feedback from the Strategic Relationship Assurance Meetings and the submission of the 2020/21 Integrated Governance and Risk Assurance Framework (IGRAF) to UKRI as well as an update on the building work at Rothera.

15.3 Nick Folland advised Council that NAB had also conducted a self-assessment exercise and agreed to do a future Deep Dive on aircraft as well as a discussion on cyber security. It was also agreed to include the annual Health and Safety and NERC/BAS Operations and Safety Assurance and Advisory Group (NBOSAAG) reports as full agenda items in future.

15.4 Council asked whether NAB had oversight of audit reports and Nick Folland confirmed that this was the case.

16. Unconfirmed minutes of Science Committee (NERC 21/34)

16.1 Graham Underwood introduced this item to update Council on the ninth meeting of Science Committee which had been held in July 2021.

16.2 In response to the outcome of the recent Council self-assessment exercise, Graham Underwood reminded Council that Science Committee provides advice on scientific matters to NERC Council

and the NERC Executive as detailed in its Terms of Reference. He advised this advice was often embedded within the NERC Council papers and also within the minutes of Science Committee which were included with the Council papers. Graham Underwood confirmed that NERC Council members were welcome to observe any future meetings of Science Committee if members felt this would be useful.

16.3 Graham Underwood explained that Science Committee had discussed the peer review process at their meeting in July and that two of the Panel Review Chairs had attended the meeting to share their experience. Graham Underwood acknowledged that this was a sensitive issue for the community with funding processes being one of the major interactions many researchers have with NERC, but that it was useful to consider how the peer review system might be simplified and whether it was always necessary for full peer review to be utilised.

16.4 Graham Underwood added that Science Committee had looked at the data from NERC on grant awards in terms of EDI to see if there was any evidence of bias. He commented that Science Committee were content with the way in which the data had been treated from a statistical and analytical point of view and that there was no strong evidence of bias although it would be useful to have discussions with other research councils who had wider experience of using social behavioural data sets.

16.5 Science Committee also considered areas where there might be gaps in the science knowledge and where NERC might take a lead within UKRI such as carbon offsetting and the transition to a low carbon economy and its implications.

16.6 Graham Underwood advised that the next meeting of Science Committee would be in October at the National Oceanography Centre (NOC) with two items scheduled which would subsequently be discussed by Council: Highlight Topics and NC Multi-Centre Science proposals.

16.7 Council noted that Science Committee were currently recruiting two new members and asked what qualities were being sought. Graham Underwood confirmed that it was important that any new members were able to contribute to wider discussion drawing upon their experience and advised that, in the current recruitment campaign, Science Committee were ideally seeking expertise in oceanography and solid earth scientists. Graham Underwood added that Science Committee were seeking to improve membership from ethnic minority groups and the criteria in the campaign had been amended to make it clear that the role was open to less experienced candidates as it would be a role which could be developed. Duncan Wingham confirmed that it would be important to recruit members who would take a broad and balanced approach.

16.8 To increase Council understanding of the items discussed by Science Committee it was agreed to share the meeting agendas, in addition to the minutes, at future Council meetings.

Action: Science Committee agendas to be shared with Council papers in future

17. Rolling Programme (NERC 21/35)

17.1 Helen Page introduced this item and reminded members that this item provided them with an opportunity to propose items for discussion at future meetings. No additional items were proposed at the meeting.

17.2 Alison Robinson asked members to contact her with any suggestions for future pre-dinner speakers.

18. Any Other Business (Oral)

18.1 No further business was raised.

18.2 Duncan Wingham thanked Council for a productive meeting.

18.3 The meeting was closed.