NERC Science Committee 21st Meeting: summary of discussion

16 & 17 October 2024 – Wallingford UK Centre for Ecology & Hydrology (UKCEH)

Members Present: Professor David Hannah (Chair), Professor Nicola Beaumont, Professor Jane Hill, Professor Ian Main, Professor Dan Parsons (16 only), Professor Marian Scott, Professor David Topping and Dr Glenn Watts.

Via Zoom: Professor Michael Bentley, Professor Anna Hogg, Professor Andrew Manning (17 only), Professor Daniela Schmidt and Professor Helen Williams

Ex-Officio: Dr Tracy Shimmield (Interim NERC Director, Research and Skills),

Apologies: Professor Andrew Manning (16 only) and Professor Dan Parsons (17 only)

Other NERC Attendees: Whole meeting: Dr Sarah Turner (NERC Associate Director, Strategic Programme Generation & Delivery (SPG&D), Charlie Mcnichol-Fardon (Future Leaders Council Chair) Liesbeth Renders (NERC Associate Director, Discovery Science and Highlight Topics) and Sarah Webb (NERC Associate Director, International Business and Policy)

16 only: Iain Williams (NERC Director, Strategic Partnerships).

Item 4: Louise Heathwaite (NERC Executive Chair), Item 6: Katie Tearall (NERC Head of Talent and Skills), Item 7: Racheal Foy (NERC Head of IPDM, Monitoring, Evaluation & Learning), Item 8: Leigh Storey (NERC Associate Director, SRO AIMP and FMRI), Item 9: Simon Gardner (NERC Head of Research: Digital Environment), Item 11: Kate Hamer (NERC Interim Director of Strategy and Analysis) via zoom, Liam Haydon (NERC Head of Strategy and Planning). Item 11 plenary: Lizzie Garratt (NERC Head of Atmospheric and Polar), Item 11 plenary and Item 12: Wendy Matcham (NERC Head of Research: Environmental Hazards & Health), Simon Kerley (NERC Head of Research: Terrestrial, Health & Freshwater), Mike Webb (NERC Head of Research: Marine), Simon Gardner (NERC Head of Research: Digital Environment), Sarah Newport (NERC Head of Research: Earth, Energy & Resources)

Secretary: Gemma Davies

Key issues discussed

Executive Chair update

Louise Heathwaite updated the committee on the spending review and the relationship between UKRI and DSIT noting that Lord Vallance, the Minister of Science, and Peter Kyle, the Secretary of State for Science, Innovation and Technology, are strongly pushing the importance of research and innovation. Louise noted her role in advocacy for environmental science, and informed the committee that the Executive Chairs from all UKRI Councils meet regularly, building NERC's relationship with other Councils. Louise also informed the committee of the recruitment campaigns for the NERC Deputy Executive Chair and NERC Chief Operating Officer.

Identifying opportunities to maximise Policy Engagement and Impact while reducing budgetary risks (Policy Fellowships)

The committee reviewed and considered that NERC will support the proposed UKRI policy fellowship scheme rather than multiple smaller schemes to reduce overall bureaucracy through a more integrated and centralised approach.

Science Committee commented that framing this as primarily policy-driven could limit broader knowledge exchange opportunities and that policy is just one aspect of impact. A broader framing of impact that encompasses innovation and community engagement, with better documentation of the collective impacts of fellowship programs would be useful. Along with case studies that illustrate the tangible benefits of these initiatives. The committee also raised career development concerns of those involved in knowledge exchange, with a lack of structured pathways for individuals pursuing this work in some instances. The lack of international context was also noted along with concerns about equity in access to these opportunities, particularly regarding geographic and career stage barriers. Science Committee agreed that clearer strategic goals and consistent funding to allow for long-term planning would be beneficial.

Independent Research Fellowships

Liesbeth Renders (NERC Associate Director, Discovery Science and Highlight Topics) introduced this item noting that review of fellowship schemes are taking place within Councils to ensure efficiency and relevance for the future. The review aims to identify overlap and complementarity between different schemes, explore partnerships for sustainability, and enhance career progression in the research and innovation sector through initiatives like the Daphne Jackson Fellowships (aimed at supporting re-entry into the workforce). Overall, the key questions are whether the current NERC scheme (IRF) is still needed and if there is interest in developing more technical-focused fellowships in collaboration with other Councils.

Science Committee advised that fellowships are highly valued. It was suggested that a deeper dive into data would be beneficial and that EDI success rates are critical to pull through. It was agreed that IRF still has a gap to fill. It was noted that very talented people apply and understanding the career trajectory post IRF (beyond simply conversion to academic posts) would be useful.

Highlight Topic (HT) Evaluation

Liesbeth Renders introduced this item noting that NERC are looking at how HTs can integrate in the future portfolio in terms of ideas and community driven work.

Science Committee noted that a small number of organisations, have a disproportionate convening role in generating ideas, but it was also noted that other organisations would be involved with these ideas (but not lead). A disparity in community members' abilities in writing idea submissions in a form that resulted in SC proposing to go forward to a call was raised, which led into a discussion on EDI concerns.

It was agreed there is value in the bottom-up processes in terms of generating ideas and value of community collaboration.

Future Marine Research Infrastructure (FMRI)

The committee noted progress to date and how the Science Requirements Framework (SRF) will be used to inform decisions and considered how the FMRI programme might seek to manage the scientific ‘pull’ described in the SRF with the rapid technological ‘push’ required by the need to decarbonise.

SC reflections included recognition that autonomous in-situ observation and remote sensing could significantly transform marine research in the coming years, though challenges remain, especially in deep water. Concern was raised on relying on autonomy to replace traditional sampling methods, advocating instead for a model that combines both. An accessible way to review data that has been collected already was also raised. Caution on the costing model was also raised, along with consequences if perverse incentives keep ships inactive to meet emission targets. The need for a consistent way to quantify considerations such as ship time, amount of fuel, carbon footprint, carbon accounting etc. was highlighted.

Scoping a large-scale investment in data science update

Iain Williams (NERC Director, Strategic Partnerships) updated the committee on the scoping activities of a UKRI infrastructure fund bid ‘Environmental Data Research UK (EDRUK).’ A review of the Digital Strategy revealed a need for improved data accessibility. The current data centre focuses on storage rather than everyday use, highlighting the significant transition

needed. Challenges include integrating data across different domains and various communities. The goal is to enable new research, new data, interlocking of data of other domains and drive FAIR data practices through a new infrastructure.

SC supported the EDRUK concept, recognising the need and opportunities it could create but also cautioned around the multiple known challenges such an endeavour would need to consider, including the national, international landscapes and governance.

Horizon scanning: future opportunities for environmental research and innovation

Kate Hamer (NERC Interim Director of Strategy and Analysis) gave an overview of the NERC forward look for the next 5 – 10 years. This will provide strategic direction of environmental science over a longer time horizon and offer a clear point of reference of NERC priorities for the community. Consultation and engagement will be sought from the community.

The committee advised on the longer-term future shape and context of environmental science, focusing on: how contexts, technologies and needs might change over the next 10+ years; and the implications of these changes for priorities for environmental science investment over that same time period.

Strategic Research Investments

The committee reviewed and ranked 5 strategic research ideas, previously prioritised by SC, in order of their potential to fill a strategic gap/ opportunity and deliver impactful outcomes for environmental science investment. SC recommended with clear rationale, the scale of each investment area.

Standing items

The Committee confirmed the minutes and noted council feedback, the information papers, and the forward agenda.