HOUSE OF COMMONS

# Environmental Audit Committee

## Sub-Committee on Polar Research

## Oral evidence: The UK and the Arctic Environment, HC 1141

Monday 4 September 2023

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Watch the meeting

Members present: James Gray (Chair); Philip Dunne; Barry Gardiner; Caroline Lucas; Cherilyn Mackrory; Jerome Mayhew; Anna McMorrin; Dr Matthew Offord; Cat Smith; Claudia Webbe.

Questions 248-304

### Witness

I: George Freeman MP, Minister of State (Minister for Science, Research and Innovation), Department for Science, Innovation and Technology.

# Examination of witness

Witness: George Freeman.

Q248 **Chair:** Welcome, Minister, to our meeting of the Environmental Audit Committee Sub-Committee on Polar Research. You know that we are nearing the end of an inquiry into Britain's relationship with the Arctic, in particular with regard to science and the Arctic, and that we are moving on shortly to a second inquiry with regard to Britain's relationship with the Antarctic. By the end of the year, the Environmental Audit Committee as a whole will have made a fairly comprehensive study of British science and enterprise of one sort or another in both the Arctic and the Antarctic.

We are extremely grateful to you for finding time to see us and for inviting a number of us into your office for various briefings over the past couple of months—we know that you take the question of Arctic science extremely seriously. Thank you very much. Do you want to make an opening remark of any kind?

***George Freeman:*** Thank you for having me. Apologies that I could not make it the last time. I will spare viewers the full details, because I think we are live, but I was the recipient of a very nasty stomach bug. I felt it was in your interests, as well as mine, that I deferred.

I am hugely grateful: I am here, yes, to answer questions, but I am also looking forward to your report and hearing your recommendations. You are right that polar research is one of the areas in which it seems to me that the UK has the opportunity to punch even higher above our weight globally. It is a very hot geopolitical area and we are internationally respected. It is one of a small group of areas where I am looking to see how we might do more, so I am hugely grateful for your expertise and insights.

In the summer, I wrote in response to the questions that you sent me. I hope that that was a fulsome answer. The only other thing I would say is that I am one of four Ministers. Obviously, the Foreign Office Minister leads on the geopolitics of the polar regions, the DEFRA Minister leads on the environmental science part, the Energy Minister at DESNZ leads on net zero and I lead on the science and research. I will try to answer all of your questions as best I can, but in some areas I may have to defer to colleagues.

Q249 **Chair:** That leads quite neatly into my first question, which is this: you mentioned that there are four Ministers altogether with responsibility for different aspects of relations with the Arctic, including the Foreign Office Minister for the Americas and the Caribbean, who tacks the polar regions on to the end of his title. Is that correct?

***George Freeman:*** I wouldn't put it quite like that. I think my distinguished colleague is the Minister for the polar regions, as well as other areas. I think that is pretty common in the Foreign Office.

Q250 **Chair:** All right. I very much welcome what you say about how seriously

the British Government is taking relations with the Arctic, but can you just give me a flavour of how we demonstrate that we take the Arctic very seriously and, more particularly, what we can do to show that we are going to take it even more seriously in the future—by comparison, for example, with some of our European and other neighbours, who take it very seriously indeed?

***George Freeman:*** Yes. Thank you. Let me answer that in three parts. First, there is our historic investment in polar research and science through NERC, for which I am responsible, and the various different agencies and bodies—the British Antarctic Survey, the Met Office and all of that. I think all of us here would acknowledge that the UK has, for years, been a very significant leader, investor and supporter on polar research.

In terms of this role, as Minister of State at the new Department for Science, Innovation and Technology, which you will appreciate is not yet six months old, we have put in place, as part of the creation of the Department, an S&T framework across Government to set out a much longer-term and more coherent approach, as set out in the integrated review, around the UK's role in the world. One of the areas that we have highlighted—do not take this from me as Science Minister; this comes from the PM, the Foreign Secretary and the Chancellor, so the top of the Cabinet—is that our reputation, investment and leadership in many areas of science research are increasingly of geopolitical significance, as well as of increasing economic significance.

For that reason, I have put a lot of emphasis in my work in the last six months and prior to the creation of the Department—we will perhaps come to Horizon in a minute—on deepening our global research footprint and our global collaborations. There are one or two ways I am pursuing that. One is through strategic bilats with key R&D economies. I have gone straight to Israel, Japan, Switzerland, Canada and India to negotiate and agree three-pillar science research, technology and innovation collaborations: pillar 1 is academic, bottom-up areas where we have joint interests, pillar 2 is commercial investment and pillar 3 is Government and regulation. There are other countries that we are working through.

The other way is to look at urgent issues globally where, although we cannot solve every global problem, the UK has a particular opportunity to show some leadership and to convene others. In that context, there are three areas that I am particularly highlighting. One is biosecurity; the pandemic taught us about the need to be much more vigilant about airborne and marine pathogens, and I think there is an opportunity for us to work with some nations on pathogen detection. Another area is polar research, given the increasing geopolitical interest in the poles, the urgency of climate change and the need to share very expensive resources. And there is also agritech, for sustainable agriculture globally.

In the polar research context, there is more we can be doing, and I am actively pursuing that with other nations who share our values and our commitment and who might be able to share more of our research. One of the things we agreed at the G7 is that we need to do more to share

infrastructure. Ships are very expensive, data increasingly needs to be shared, and there is also the issue of fellowships. So I am actively pursuing that.

The last area is about working across Government. Part of the creation of DSIT was to ensure that, across different Departments, there is a much more coherent policy. That is work in progress, but this is one of the areas where, to your question, we could do much better.

Q251 **Chair:** All that is very laudable, but only one sentence of it referred to what we are discussing this afternoon—namely, the fact that you have an interest in polar science—so perhaps we could focus on that part for the moment. Can you let us know what the Government are doing or intend to do to better or improve our contribution to polar science—Arctic science, not polar?

***George Freeman:*** Just to start in terms of budget, NERC's budget is £311 million, going to £325 million over this CSR. We have put in, through various funding pots, what amounts to the biggest increase in Government research in polar for a generation: some £69 million of capital. That is part of a £670 million long-term capital refurbishment programme. There is £49 million per year for the BAS infrastructure and logistics, which I am sure you will want to touch on, and the commissioning of the research ship Sir David Attenborough. There is a major international commitment, which we are increasing, not lessening.

We recognise that the Arctic is becoming increasingly open. It does not have the same logistical constraints in access as the Antarctic, in both a good and a challenging way. The melting of the ice, the opening up of corridors and the geopolitical work there mean that it is increasingly important. One of the areas in which we are looking at doing more is earth observation and the use of satellite data for both climate change tracking and also issues such as fisheries, movement and biosecurity. There is a whole raft of areas where, using space data, earth observation and AI, we can start to get much more value out of the research we do.

I am also interested in your recommendations on whether you think that we should be opening up more of a research facility in the Arctic. We are very conscious that we are not a formal Arctic nation—we are an observer—but it seems to us that if we are going to punch above our weight globally in key theatres, this is one of them. That is why I relish being here today both to give evidence and to hear from you.

Q252 **Chair:** We will come back to most of those topics in other questions during the session. My thrust was to try to work out how you reckon that we will increase our standing in polar science and research. I am puzzled by the fact that you have now been giving evidence for some 17 minutes, if I've got my clock right, and you have not yet mentioned climate change. That seems odd; surely climate change should be absolutely central to what we are doing in the Arctic in terms of science.

***George Freeman:*** The record will show that I mentioned it twice, briefly.

**Chair:** I stand corrected.

***George Freeman:*** You make a really important point. It is nowhere more important than in the Arctic, where the rate of ice melt, on I think the latest figures, is responsible for—it is a disproportionate element of global sea level rises. That is line 1 of all the work that the Government are doing across global net zero and climate change. The Arctic and the Antarctic are the test beds and frontline laboratories for much of that.

I do not want to run you through lists of all the various programmes we are doing, but I think your point is: how do I envisage that we might do more? There are two or three ways. One is the subject that we have discussed in my office. By getting together with fellow nations that share our values and interest in polar research, we could achieve a lot more through better co-ordination of our resourcing. So I am exploring, with other nations, a polar research fellowship. We are already highly regarded, but imagine a Canada-UK-US-Norway joint fellowship—the ultimate fellowship in polar research. You could do six months with BAS and six months with the Canada-Inuit programme—so I think it is about fellowships. There is the sharing of data. One of my challenges in the appointment of the new NERC chair is that NERC must be much more interdisciplinary, work much more with other groups and think about data sharing better.

Thirdly, there is the interdisciplinary science and the earth observation data, using our space resources. I am the Minister for space as well as for polar research. In Whitehall, they tend to be very different, so we could link them better. Fourthly—again, I look for your recommendations on this—the historic commitment on logistics in the Antarctic has a very particular geopolitical rationale, and I think one could make a case that the Arctic now merits an increase as well. I am not a Foreign Office Minister, and I defer to you and others, but I am very open to hearing about that.

Q253 **Chair:** We will come back to that in a second, but let me turn to this question of our status as an Arctic nation, particularly with regard to what we are doing on climate change. Our former colleague Lord Goldsmith was absolutely committed to the environment and climate change in a very big way—it has been his life's work—but when he resigned, he talked about the Government's "apathy in the face of the greatest challenge we face," namely climate change. Lord Goldsmith said the Government were apathetic about climate change. Was he right or wrong? Or just bitter? Or what?

***George Freeman:*** I don't recognise that characterisation.

**Chair:** You don't have to recognise it; you have to answer it.

***George Freeman:*** I respect hugely his commitment to the cause, and I am very proud of what we are doing. The urgency of climate change means that it is very easy to say that no one is doing enough, and I

understand his frustration, but it is wiser for me not to comment on fellow ministerial resignations.

Q254 **Chair:** So despite what Lord Goldsmith, the person who launched the Foreign Office's Arctic policy document not so long ago, said in resigning about the Government being apathetic towards climate change, you are confident that we are truly punching above our weight, that we are the No. 1 Arctic nation, and that we really are standing up and—

***George Freeman:*** I wouldn't say No. 1. We are fourth in science and research, but I think you can make the case that we punch above our weight. UK research papers in polar regions are 90% more cited than other countries' research, so we are punching above our weight in terms of the quality of the science, and I would also observe that two thirds of all Arctic papers are international and collaborative.

I am not at all complacent—it's why I relish your inquiry and being here today—but the challenge, when we are running just short of 100% debt to GDP, is: how do we get more out of the money we are putting in? I am proud that we are putting more money in, and I think the rising geopolitics of the polar regions and the urgency of climate change mean that we should be looking at every way we can to get more bang from our buck by working more closely together, not in silos. Everyone is proud of their own programmes, but there is more we can do to share data, share fellowships, share equipment and plan better, as indeed the G7 Science Ministers agreed earlier this year.

Q255 **Chair:** Finally from me before we move on to more detailed discussions, we touched on this briefly a moment ago, but how confident are you that we have a Minister, senior person or senior official—someone who is from Britain—who is the Arctic person? You mentioned that there are four Ministers. Which one is senior? Who speaks for Britain with regard to Arctic matters, particularly climate change, but also more generally? Surely what we have is dissipated between four Ministers, with different rules and different jobs, rather than having a single person, like maybe some of our continental colleagues, who have a serious, senior, single person with responsibility for Arctic relations.

***George Freeman:*** At one level, I think no Government structure is perfect. The important thing is, if you have four Ministers, then they need to be working closely together, as we are, and part of the rationale, as I said, for setting up DSIT—

Q256 **Chair:** How often do the four of you meet to talk about Arctic matters?

***George Freeman:*** Since the creation of DSIT, all four of us haven't sat down together, but it is something that I have suggested we do. As part of DSIT's creation, the Prime Minister wants us to be not a siloed Department, but a Department for choreographing—

Q257 **Chair:** So you are four Ministers but you haven't actually met.

***George Freeman:*** No, but the Department was only created in the spring. You have been into my office for two meetings already on this

subject, and you paid tribute to my work and energy on it before. I am not at all complacent, but I think you make an important point: that if you are going to have four Ministers, they really need to be working together.

I don't know if this is news to you, but I am pleased to say that the Foreign Office is appointing, or has appointed, a senior officer for Arctic, to co-ordinate Arctic work and research. There is probably always more we can do, and I am genuinely here in a spirit of listening. I don't think I'm guilty of being complacent; I have highlighted polar research, specifically for the reasons you are flagging, and am suggesting that we need to be more—

Q258 **Chair:** Forgive me for being a bit tough—you and I are very old friends and therefore I'm perfectly entitled to be as tough as I like.

***George Freeman:*** You certainly are, Chair.

**Chair:** You are quite right to say that the Foreign Office has appointed someone to look after the Arctic. For many years, we had the excellent Jane Rumble in charge of both Arctic and Antarctic—she does absolutely fantastic work and gave evidence to this Committee just before the summer. We have always had a senior official in charge of these matters, but we have not got a Minister, and I am afraid to say that I find myself disappointed that there are four Ministers, but that you have not met once to discuss the Arctic. Surely that demonstrates very much what Lord Goldsmith was talking about: the degree of apathy with regard to what's happening in the Arctic.

***George Freeman:*** I don't think it is apathy. I think we should be meeting regularly. You will appreciate, as a veteran—

**Chair:** Old.

***George Freeman***—observer of these affairs, Mr Gray, that the traditional structure in Whitehall can sometimes be quite siloed. Departments focus heavily on their responsibilities, and do not venture into others'. Part of the reason for the creation of DSIT was to ensure that science, innovation and technology go across Government. That is a huge piece of work, which our permanent secretary and others are leading on. I am tapping Ministers on the shoulder and saying, "The days of siloed departmental responsibility are over; we need to work together much more closely." I accept your challenge; we should probably have met in the three months between the creation of the Department and the summer recess.

Q259 **Chair:** So you would very much welcome one of our conclusions being that Ministers should meet more often to discuss these matters?

***George Freeman:*** Yes. I think the answer to your question is this: there is no doubt that the Foreign Office Minister, Mr Rutley, is responsible for the geopolitics of our view of the Arctic; I would defer to him on that. As for our net zero and international climate change obligations, Minister Stuart at DESNZ leads on that, and I would defer to him on that. I lead on the allocation of our science, research and innovation spending, but I

absolutely take your point that we should work together closely on it, and we should work more closely with international partners.

Q260 **Cat Smith:** Thank you, Minister, for making yourself available to the Committee today. You talked a little bit about the impact of climate change on the Arctic. May I push you to say a little about the implications for the UK? What assessment have the Government made of the changing environment, or climate change, in the Arctic, and its impact on the UK?

***George Freeman:*** Thank you. It is most pressing and urgent that that should be the prism through which we view the Arctic. Again, Minister Stuart leads on our international climate change obligations, and I defer to him and DESNZ on that, but I relish the opportunity to comment. You ask an important question about the impact on the UK. First, the impact is on the globe. The Greenland ice sheet would be, I think, responsible for 27 cm of global sea level rise, so it is absolutely the arrowhead of the global climate emergency. All of us have an interest in that, which is why it is important that the geopolitics are got right. The poles, space and the deep oceans are frontiers in which we all have a shared interest. Secondly, as an Arctic neighbour—an Arctic observer—we have a strong security, geopolitical and hemispheric interest in the Arctic. That is one of the reasons why I agree with you, Chair, that the four Ministers responsible should come together and work more closely.

Finally, there is a huge amount of work going on around adaptation. You will have seen the adaptation plan that the Government have put in place. The Carbon Budget Delivery Plan—you will know more about this than I do—is a long-term commitment to reducing our emissions, adapting and mitigating.

I do not for a minute claim that the whole problem is solved, and I do not deny its urgency, but I do not accept at all the earlier comment that the Government are complacent about this; look at the amount that we are investing, and committing to leadership on climate, to clean energy, to renewables, and to adaptation and mitigation, globally as well as in the UK.

As Science Minister, I can tell you that when I go to the G7, I see that people respect the UK for our leadership on an issue that, as far as global emissions are concerned, is now more largely shaped by China than by us; but people can see that we are committed to global science for the global good, particularly in this context.

Q261 **Cat Smith:** You might tell me that this is a question for Minister Stuart, given that answer, but how does the national adaptation plan address risks, such as the sea level rise that you mentioned, and any subsequent flooding, or changes to the UK because of extreme weather events? Is that in your brief?

***George Freeman:*** It is not, but I will happily pick that up with Minister Stuart and come back to you with a proper answer. You will have seen that the Government have set out an adaptation plan. There are fine

minds in Whitehall, in DESNZ, working on precisely that, and I would not want to give a glib answer here, within a few minutes.

Q262 **Cat Smith:** I think the Committee would appreciate something in writing, either from Minister Stuart or you.

***George Freeman:*** No problem.

Q263 **Anna McMorrin:** To help you with that answer, perhaps you can expand on your role in research and science, and what is prioritised and focused on.

Surely, if that is prioritised and focused towards climate change, and the impacts that the changing Arctic has here—with flooding and the changing weather conditions and patterns we are seeing—that actually does reflect precisely on your ministerial responsibilities. So I suppose it is about understanding how that comes together.

***George Freeman:*** I would accept that. There is a huge amount of work going on around adaptation, through the Met Office, for which I am responsible, and a whole raft of intergovernmental bodies. I think, on that point, I will happily come back to you in writing with those details if I may. However, I would make the point that we have set out in the integrated review, and the S&T framework, that carbon emissions and the climate emergency is one of the absolutely key issues that we need to harness science, research, technology and innovation to understand, to mitigate and to reverse.

We have made a very big commitment to that. I will not try to list all the things here, but I accept the challenge that, ultimately, this requires us to be able to say, "Well, what are we getting for the money we are putting in, what is everyone else putting in, and are we punching above our weight?" On the science and research in polar regions, the data I have cited certainly suggests that we are, but that is not a reason for not doing more.

Q264 **Anna McMorrin:** Okay, thank you. Following on from that, we visited the Arctic earlier this year. We visited the Fram Centre, which is Norway's environmental research centre, bringing together about 500 scientists, but also research, from all different facets and areas of Arctic science. We were incredibly impressed by how they co-ordinated and ran their science, and worked together in a global effort, with all those different scientists with their different specialisms.

Do you think we need a much more strategic approach, as we see in Norway? Of course, Norway is an Arctic state, but, as you have just accepted, we are feeling the impacts of those issues, so how can you see that happening with a more co-ordinated effort?

***George Freeman:*** Yes, I do. That is why I have highlighted polar research as one of the three areas that I think we could and should be doing more on internationally. How? Well, I have mentioned fellowships, and I think that a better integrated career path and fellowship programme for the world's best scientists is part of it. I think better data sharing is also a key part, as is better research infrastructure—we are talking about

some of the most expensive research infrastructures—and better co-ordination of them.

But also, I think that another part is more philanthropy. There are a lot of people around the world who increasingly want to put money back in to tackling global challenges, and polar research is one of those areas where there is evidence of quite a lot of interest. So as well as the core academic funding, we need to be thinking about international partnerships, new sources of funding and much better co-ordination between different projects.

Q265 **Chair:** I wish to come in briefly on this point about philanthropy, if you don't mind. At the meeting in your office, why did I get the impression that some of my fellow colleagues there were less enthusiastic than you about using philanthropic donations to help Arctic science?

***George Freeman:*** I don't know, is the answer to that, but let me reassure you that, as part of the S&T framework and the creation of the new Department, the Prime Minister, the Chancellor, the Secretary of State and I have identified that part of the challenge for us, in a society where there are now more and more people with very substantial resources, is to make it easier for people to philanthropically support this. It happens in medical life science very extensively; there is no reason why it should not happen in other frontline areas, and I think, from the Gates Foundation to other examples, there is an appetite. We tend often to think very academically about this; we need to have academic science and to make it easier for people to do philanthropy.

Q266 **Chair:** So you would welcome philanthropic contributions to British scientific research in the Arctic?

***George Freeman:*** Yes, and in other areas, such as biosecurity and biotech.

Q267 **Chair:** We do not want to lose track. We have a very substantial amount of money being spent in the Arctic, entirely or largely American Government or US funded. You would welcome philanthropic contributions towards Arctic science.

***George Freeman:*** Yes, I would. It is really important that we think about how we can encourage more philanthropic funding into research generally, in a number of areas.

Q268 **Anna McMorrin:** Do you think an Arctic research strategy is needed to bring that about and make it as effective as possible?

***George Freeman:*** Potentially, yes. I am sincerely interested in reading the recommendations in your forthcoming report, because of the growing global race for investment, the urgency of climate change, and the geopolitics of the Arctic. We have known about the south Atlantic geopolitics, but the geopolitics of the Arctic, particularly now, make this a rising issue. That is partly why I have highlighted it and why I am here today.

Q269 **Anna McMorrin:** We have heard in previous sessions from a lot of witnesses from universities and research centres who have criticised the Government for their lack of an interdisciplinary approach, the lack of a targeted approach, and the lack of funding for specific areas. Interdisciplinary research is really important for building understanding of the impact of climate change on the Arctic. From you, we need to hear what the Government are doing to encourage interdisciplinary projects, and to ensure funding to cover that.

***George Freeman:*** I will happily write with more detail, but let me give you the headlines. First, we have agreed within UK Research and Innovation—our lead agency—very significant top-slicing of funding to fund interdisciplinary research. In some quarters, that has been quite controversial; people have asked why we are taking money from long-standing, esteemed research councils, which do not have to argue for their existence, and putting it into interdisciplinary research. The view we have taken is that, actually, if you believe in interdisciplinary research—what happens when you put AI together with neural networks and BIOS—you need to invest. We are doing that quite substantially.

Another factor that militates against interdisciplinary research is career paths. That is why I talked about polar research fellowships. We do not want just glaciologists, or marine scientists. We want a mix.

Q270 **Anna McMorrin:** These are all quite small things though, aren't they? I am still not convinced that we are hearing how all these things are matching up, going from not talking to your colleagues about these issues to working together in an interdisciplinary approach.

***George Freeman:*** I understand your impatience, but I can give you the UKRI numbers showing very substantial investment in interdisciplinary science and research. It is not small at all. The fellowships programme that we are in the process of launching, either through Pioneer, the Horizon alternative, or through our own UKRI infrastructure, is really important. If we want to do interdisciplinary research, we have to make it easier for people to go between different academic silos and make progress in their careers. I do not think these are small measures, but I accept absolutely that doing this requires us to work together internationally.

Q271 **Anna McMorrin:** Would you say that there is a correct mix of short-term and long-term funding? One of the criticisms of the Government that we have heard is that there is currently no funding body that can fund long-term Arctic science. That is what Professor Geraint Tarling of BIOPOLE told us. What is your response to him?

***George Freeman:*** That is a traditional lament or concern in UK science and research funding across the board. We tend to work in CSRs, three-year cycles. I am on the record saying that if you really want to support proper long-term scientific endeavour, you need long-term funding frameworks. There are a few ways we can do that. One is through institutes—the creation of independent research organisations—and we have made that a priority of the new Department. A lot of work is going on

right now in areas where we might be able to endow, or co-endow with a philanthropist, some longer-term institutes that can drive research, and I think polar is one area where we can do something very interesting.

Q272 **Anna McMorrin:** The Fram Centre that we visited in Norway has a very good model.

***George Freeman:*** I would love to see your findings on that.

**Anna McMorrin:** Well, go and visit them.

***George Freeman:*** I would love to be able to go and visit them as well. Perhaps I can start by reading your note, and then I could go.

We are looking at a number of areas. There are one or two laboratories in the UK—I won't name them here—that are doing extraordinary work on tackling climate change and long-term challenges on little, three-year funding cycles. To me, when an institute has developed and proven excellence, they deserve the right to longer-term funding; that is a bigger reform to the way we fund research that I am trying to put in place.

Q273 **Barry Gardiner:** I want to talk about Arctic infrastructure, Minister. Let's start with an easy question.

***George Freeman:*** I doubt that from you, Mr Gardiner!

**Barry Gardiner:** When we were visiting Ny-Ålesund in Svalbard, we learnt that it is free for researchers to use the facilities on the RRS Sir David Attenborough in the Antarctic, but that they have to pay and budget within their grant if they want to use the same facility in the Arctic. Why is it that coming north increases the payload in that way?

***George Freeman:*** That is a very good question. The answer—and I am not suggesting that this is an adequate one—is that the Antarctic is much more remote and harder to access, and that there are huge logistical challenges, so it is only right that we provide some core platform funding to mitigate those challenges and the geopolitics, post Falklands, of our presence in the south Atlantic. I note with interest that we have just made the station manager at Ny-Ålesund permanent, but it does seem worth examining the situation and to what extent it might affect Arctic research. The truth is that NERC funds roughly £10 million a year of Arctic and £10 million a year of Antarctic research, but the Antarctic has this big subsidy, if you like, underpinning it. I think it is worth asking to what extent a little more core resource infrastructure, possibly shared with some other nations, might open up much more research in the Arctic. I was quite struck by the disparity between the two funding models.

Q274 **Barry Gardiner:** So if it were to be a recommendation of this Committee that that funding inequality should be equalised, we would be pushing against an open door as far as you were concerned. Is that right?

***George Freeman:*** Let me just say that I would read it with great interest.

Q275 **Barry Gardiner:** I will take that as a yes. Thank you very much.

What additional support would the Government think it could give to the station so that it can open for longer periods? You have just said that the post has been made permanent, which I am sure we all welcome, but it is a permanent post that is actually only available for part of the year. There seems to be an inconsistency there: we are agreed that it should be a permanent post, and you have said how much you believe that Arctic research is where it's at and that we should be doing more of it, so why don't we have the station open all the time, like some of the other stations are, so that more research can be done? At the moment, I think it is a bit of a chicken and egg situation: researchers know that the station is not open all the time, so they don't feel that there is the same ability to put a research proposal forward, particularly if they have to pay that extra cash out of their grant to do it.

***George Freeman:*** You are asking a really important and interesting question. Obviously, the extra funding is always covered in the research grant, so if you're an academic putting in for a research grant in the Arctic, there are logistics and access costs that are covered in a different way in the Antarctic. But I still think you are making an interesting point, even if it is only—although I am not saying that this is the case—that there is that perception. If that is a barrier to more and more Arctic research, it is one that we should look at. I have highlighted polar research because this is an area where, if we got together with a relatively small group of nations who share our interests and agreed to co-fund some bigger fellowships, and agreed on more data sharing and better resource infrastructure, then, with a bit of philanthropic funding, we could do a lot more without a huge amount of extra investment. That is exactly what the taxpayer would expect us to do.

Q276 **Barry Gardiner:** Can I add to that something that surprised me when we were talking about the four Ministers? Defence is not one of the Departments that has a Minister with a remit for the Arctic. You acknowledged the opening up of the northern sea passage; this Committee, and the Lords Committee that has been looking at this from a foreign affairs and defence point of view, have made some very trenchant observations about the remilitarisation of the Russian Arctic. It strikes me as odd, given what you said about the Arctic's geopolitical and strategic importance, that all of that is laid at the door of the Foreign Office, and Defence does not have a Minister who is co-ordinating equally with the other four.

***George Freeman:*** It is an interesting question. I may have omitted to mention an MOD ministerial responsibility that I should have been aware of. You make an interesting point.

I do not have responsibility for defence and security, but it is my understanding that there is a very good relationship between the Foreign Office and the Ministry of Defence on security matters in hot theatres, if I can put it like that. It seems to me that the issues you have described, and that I cited earlier, of the opening up of the Arctic for all sorts of reasons, good and bad, is making it a more geopolitically intense theatre. Our earth observation data and the Met Office data have huge climate

change uses but also very important security applications, and this is why we need a more joined-up approach.

Q277 **Barry Gardiner:** And obviously some of the infrastructure that goes to collecting that data is for military purposes, so if you are looking at sharing the costs, it would seem that the military might be an appropriate source to look at.

***George Freeman:*** I dare say. You raise an interesting point. One of the things about being a science superpower is that different Departments have multiple applications and need co-funding. We need to get away from a model where one Department funds something and that is theirs. That is one of the big challenges, which I relish, of the creation of the Department. Take space, for example; earth observation data has huge value to DEFRA, MOD, DFT and DSIT, and we are in the process—the Department having been created only six months ago—of developing ways of working across Whitehall through a framework, so that Departments become partners and customers in some big infrastructure, and the data sharing that goes with it.

Q278 **Barry Gardiner:** And the benefits are paid for proportionately by each?

***George Freeman:*** Yes, that would be—

**Barry Gardiner:** Devoutly to be wished.

***George Freeman:*** Not since I read Thomas More's "Utopia" have I heard of something as logical. It is the same for space data, earth observation data and a number of other areas.

Q279 **Barry Gardiner:** Let me turn to the RRS Sir David Attenborough. It is more than likely—inevitable—that it will spend far less than 50% of its time in the Arctic. We have just talked about the changing geopolitical balance and the sensitivity of the Arctic region; there are the issues of deep-sea mining, its potential for military conflagration and in-space satellite observation. That would all indicate that having a more permanent platform in the Arctic, certainly more than 50% of the time, would be a very good idea.

We have all welcomed the Sir David Attenborough, after we had great fun with Boaty McBoatface. Can we look forward to another platform that can give a greater proportion of its time to the Arctic? Is that part of the future infrastructure that you, from the Department for Science, Innovation and Technology, would recommend, or that you would welcome as a recommendation in this Committee's report?

***George Freeman:*** What I would say is that I have made it very clear: on more polar research, the UK has an opportunity to do more and get more. It can show more leadership internationally in one or two areas, and polar research is one of the keys to that. I am interested in making sure that we have a robust answer to that very question, because if we and a few nations who share an interest, values, commitment and budgets could come together to work a bit more closely—if we looked at other sources of funding and we had a slightly longer term, inter-departmental and

rounded view—we could unlock more interest in research, more grants, more philanthropic funding and more research per pound. One of the issues with that is the permanence of some research stations. I would relish this Committee's recommendations on that.

Q280 **Barry Gardiner:** Thank you; that is extremely helpful. One final question, if I may. You spoke very powerfully about collaboration. We have seen what has happened with Horizon; we are keen to get that back on track, obviously, but looking at this from a defence and security point of view, one of the areas where there always used to be very close co-operation between us and Russia was Arctic research. If we are going to have the same sorts of back channels of communication, how do you see your role as Science Minister, and the platforms of the infrastructure that we can put in the Arctic, contributing to that closer co-operation, which, in cooler, calmer geopolitical waters, might give that basis for opening up channels of communication and co-operation?

***George Freeman:*** That is a very interesting series of questions. Again, I would relish the Committee's thoughts. I am not suggesting that what I am about to say is a comprehensive answer, but in some areas we could do a lot more. Take data sharing; you will be aware that the vast majority of science and research is essentially data. The sharing of data, the pulling together of different data sets and the use of AI in powering through large data sets is a really important frontier of science. You need to be able to share data better. As we have seen with the increasingly tense situation with both Russia and China, this is a big issue globally.

We want to share data—the pandemic has shown us how important it is that we share data better—but we have to share data with people who sign up to the same values and rules. That is why I have suggested that the polar research bilat would be a nice way for us to get together with two, three or four other nations who share our approach, as I am doing in space sustainability and other areas. We would not be looking for a legislative mandate, or reinventing the Arctic Council—just getting together with some countries who share our approach and seeing if we couldn't do a bit more.

I should just say, in answer to your earlier question, that we shouldn't forget that the James Cook and the Discovery are active in the Arctic. I am delighted that the David Attenborough is going up to the Arctic next year. I think you make an interesting point about land-based, ship-based and space-based integrated research infrastructures. I am all ears; that is why I am here today.

**Barry Gardiner:** Thank you for your openness and the way you have looked forward to this Committee's proposals.

Q281 **Chair:** Three quick points before I call Jerome. First, Minister, I think I heard you say that the post of director of the British research station at Ny-Ålesund is now a permanent post. Is that what you said a moment ago? I just want to clarify, as I had not heard that.

***George Freeman:*** Yes.

Q282 **Chair:** Is that a recent announcement?

***George Freeman:*** Yes, it is. I could get you a date—

Q283 **Anna McMorrin:** Is that full time?

***George Freeman:*** I believe so. I will check for you.

**Anna McMorrin:** Is it permanent and full time?

**Chair:** Not full time, but permanent. We have clarified that he has now been appointed, which is great. I am sure that the Committee will welcome that.

Secondly, I want to correct the record slightly—it is our fault; the brief was incorrect. I understand that scientists actually are free on the Sir David Attenborough in both the Arctic and the Antarctic. We were slightly misled. I apologise to you, Barry; the brief was incorrect on that detail.

**Barry Gardiner:** The briefing was wrong.

Q284 **Chair:** I am happy to correct the record.

A third and very quick point, Minister: would you like to see the Sir David Attenborough get up to the north pole? I think I am right in saying that the French have been there and done that. Would it not be wonderful to see the Sir David Attenborough at the north pole conducting scientific experiments?

**Barry Gardiner:** With you on the bridge, Minister.

***George Freeman:*** You and me, Mr Gardiner—this Committee—together on the bridge!

I think the David Attenborough is a serious flagship for the UK's commitment to global science and research, and it punches above its weight. Its deployment times are limited—it cannot be deployed all the time, and is operating in extreme environments—but like Tim Peake's work in space and our life science work at the cutting edge of intracellular mechanisms, it speaks to Britain as a global force for good.

Like you, I was delighted to welcome the exhibition about the Attenborough at a reception here, with Sir David, at which I spoke. The more we can show the world, as well as our citizens—taxpayers—and our young, that the UK is not stepping back from our international responsibilities, from the north pole to the south, from the Arctic to the Antarctic and from the deserts to the deep oceans and space, the more we will be seen to be punching above our weight. I think that is a noble endeavour. I also happen to think that it is economically smart—it will attract investment—and diplomatically smart. I think it is a win-win-win. It is not for me to decide where she sails—

**Chair:** It would not be sailing much in the Arctic, at the north pole; it would be crunching through the ice.

***George Freeman:*** My boatmanship is restricted to smaller vessels on the Norfolk coast.

Q285 **Jerome Mayhew:** Very sensible.

Mr Freeman, you have talked about bilateral agreements and getting a group of like-minded nations to collaborate. We have previously heard evidence about the importance of some of those agreements—with Canada and Norway, as well as the United Kingdom-Canada Inuit Nunangat agreement. But there is one big collaborative organisation that we are no longer a member of: Horizon. I know that there is an appetite to rejoin. Can you update us on where we have got to in those negotiations?

***George Freeman:*** Let me say for the benefit of those listening—I think everyone here knows this—that in negotiating the TCA, the Brexit deal, in 2020, the Government made clear that ongoing membership of Horizon, Euratom and Copernicus were fundamental parts of the deal; for me, they were a red line. I am delighted that the then Prime Minister Boris Johnson secured that.

The problem has been subsequent politics around Northern Ireland, and the European Union feeling that we were not honouring the terms of the Northern Ireland protocol. The Prime Minister unblocked that with the Windsor framework earlier this year, causing the EU to say, "Good! You can come back in." The Government's position remains one of seeking association. I do not say that lightly; as you will be aware, Government policy gets made through a series of committees, and that policy has not changed.

The position is that it is a Treasury-led negotiation, because the sums are so vast. The Prime Minister has set out a very clear negotiating remit to get back in, but on the right terms. By that we mean value for money. You will appreciate that it is a seven-year programme, and we have missed the first two and a half years. If you liken it to a seven-course feast in a restaurant, we have been out at McDonald's. We have been funding our own activities through the Horizon guarantee, so we are not going to pay the full seven-year membership.

At a very basic level, the question is: when would we re-enter, and what is the membership fee going forward? The honest answer is that those talks have been ongoing through the summer. On day one of the return of Parliament, I am not yet party to where they have got to, but let me be very clear for the record: I and my Secretary of State strongly believe that our interests are best served by being in Horizon on the right terms. Also, I just observe that over this three-year CSR, investment in science in the UK is £52 billion; through European programmes, it would have been £8 billion over the three years and, globally, just under £1 billion. If we are going to be a global force doing more internationally in polar, agritech, deserts, space and oceans, that figure needs to go up. That is the best answer that I can give you at the moment. I am waiting with bated breath to hear the news from the Treasury negotiators.

Q286 **Jerome Mayhew:** If the negotiations are still ongoing, one has to anticipate that they may fail. You have mentioned Pioneer; if that happens, is it still the fall-back position? If so, what work has been done

to develop Pioneer as an alternative?

***George Freeman:*** When I returned to Government in November '21, I was surprised to discover that we did not really have a plan B—we did not have an alternative—which seemed to me to be, first, a weak negotiating position and, secondly, a policy failure. We needed to be thinking, "What would we do?" We have worked hard in the past year to put together this plan, Pioneer, which has been widely consulted on. I have to say that the feedback has been very positive from a research community that wants us to be back in Horizon, but that has looked at Pioneer and said, "There's some very good stuff in here. Couldn't we do both?"

Right now, the Government's position is that if we cannot negotiate a Horizon reassociation on fair terms, we will launch Pioneer. I think that negotiations would be helped by launching some of the Pioneer programmes now, out of the underspend from Horizon. That would help to keep feet to the flames for everyone in Brussels, and make sure that we are demonstrating our commitment to global research. I hope that the Treasury will come back shortly with a negotiated position and we can all move on.

Q287 **Jerome Mayhew:** In one of your earlier answers, you highlighted the importance of data. In fact, I think you went further and said that data is the basis of all, or the vast majority of, international research at the moment. The problem with Arctic data is that we are missing half of it, with the suspension of Russia from the Arctic Council—a coastline of about 7,000 km for which we are missing the information. That will clearly have a huge impact on science's ability to model, forecast and undertake the data analysis that you were referring to. What assessment have the Government made of the impact of Russia's war with Ukraine and the subsequent reduction in the UK research capacity in the Arctic?

***George Freeman:*** Great question. Let me start by saying that, as Minister 18 months ago, when the criminal Russian invasion of Ukraine took place, I was absolutely adamant that we should—as the Prime Minister set out—hit the Russian state, the criminal kleptocrats who are running this war machine, hard. That included science sanctions, but was not aimed at legitimate Russian science and scientists doing good work that is not supporting the Russian state. That is not an easy line. I immediately commissioned work for UKRI across the board. We identified a small number of Russian programmes that we felt had to be stopped immediately, and we have withdrawn from a number of international bodies.

I will not pretend that that does not have some impact, but I would not resile from that decision. At the G20 this year, I walked out when the Russian Minister addressed us, criticising the West for conspiracy. We have to take a stand and make it clear that we will not tolerate that. If people want to play in the international science research field, there are rules and values.

To answer your question in a bit more detail, yes, we have lost a bit of data. I checked before coming here with the experts who deal with this, and they said that the data was far from perfect before, but that the situation is undoubtedly worse; but, that said, the Norwegians have, since they have taken over as chair of the Arctic Council, made efforts to repair some of those science and research links.

It is important to note that Russia still contributes data in a number of areas, through the UN World Meteorological Organisation, the IMO or International Maritime Organisation, the Central Arctic Ocean fisheries agreement and the newly signed high seas biodiversity treaty. We tried to hit the criminal Russian state hard, while allowing good Russian science, for the global good, which I think is the right approach. NERC reviewed all Russia grants and none was rescinded. We are trying to get the balance right between hitting the Russian criminal war machine and allowing good science.

Q288 **Jerome Mayhew:** You have made numerous references to other bilateral agreements and getting together a group of like-minded countries. As you know, NERC has for quite a while had an agreement with the National Science Foundation in the USA, and I believe it recently signed a memorandum of understanding with Norway. I get the impression that you are itching to tell us all the countries you want us to have these bilaterals with. Who else is on your shopping list? Where can we go?

***George Freeman:*** There are a few. Canada is one of the five countries that I have been to, and the wonderfully named Minister Champagne and I have negotiated a framework—a strategic science, research, tech and innovation agreement. He is, like me, also the Minister for space, and we have identified that the sharing of data, including the sharing of satellite Earth observation data, specifically in the Arctic, where the Canadians will shortly be deploying a fixed geostationary satellite, is the sort of area, and a specific area, where we can do more.

So there is Canada, the US and Norway. I have been lucky enough this last year to chair the Baltic nations alliance of science Ministers. There is very strong interest from Norway, Sweden and Finland. Obviously, the security situation has changed post Ukraine, and there is a coming together of northern European nations who recognise that the Arctic is a geopolitical hotspot on their doorstep.

In the Southern ocean, I am planning to go down next year to look at the Chilean research station right in the south. They are building an observatory for currents, marine science, oceanography—I can see from the nods that you are all aware of that. And there is New Zealand and Australia, and us.

It seems to me there is a natural group of—I don't know—five, six, seven, eight, nine nations who share values, commitment and research, and that, without setting up an international treaty, we could just do what the G7 Ministers agreed: look at how much we invest and whether we could do it in a more coherent way.

Q289 **Jerome Mayhew:** Finally, we have the international polar year coming up in 2032-33. What plans do we have? How are we going to make the most of that?

***George Freeman:*** Actually, we have a number of really exciting events coming up: the Arctic science summit week in Edinburgh in the new year; the Arctic Frontiers conference in Tromsø in Norway; the Arctic science conference in Cambridge; and the fifth international polar year. Those first three are all events that I plan to go to as part of this polar focus.

It is still early days on the international polar year. The International Arctic Science Committee, the Scientific Committee on Antarctic Research, various UN bodies and the World Meteorological Organisation are co-ordinating an international steering committee, which we are contributing to. As you will be aware, we have a very proud record of supporting and engaging with international polar years—not least the last one, which we hosted here. That is partly why I have identified polar research as a key strategic priority for the UK, because I think we can build up to this and use it as a framework for doing more and delivering more from less. With all the things we have touched on here today, I would like to think that we could use that event, which is a few years away, not as a pause point to wait for and then discuss things, but as a building moment to build through and deepen collaborations towards it.

Q290 **Chair:** You gave a rather benign picture a moment ago about how we have stopped all the nasty research with Russia but the worthwhile and sensible research is continuing some, but the amount that is continuing is extremely small; there is a very modest amount of research continuing. We heard from Professor Terry Callaghan, who is one of the great experts on permafrost melt, for example, that 90% of his research is in Siberia and that has stopped, and we are no longer looking into methane escaping from permafrost as a result. To what degree can you imagine us ever reopening joint research of that kind with the Russians?

***George Freeman:*** Just to correct the record, I was trying specifically not to suggest that this was an easy, black-and-white decision. These are difficult balances, and I think implicit in that is that one is never sure that it is absolutely right. If there were particular examples of really good research that has suffered, I would welcome your steer and relish the chance to have a look and see if there is something we can do.

Q291 **Chair:** There is a huge amount. The Russians control half the Arctic, and therefore almost all—well, that is exaggerating my case a little, but a huge amount of scientific research in the Arctic is done in Russia. Siberia is by far the most important place there is. That has now stopped, or our participation in it has stopped.

***George Freeman:*** I refer back to the point I made earlier. These are difficult judgments but, as a European nation, we either look at the appalling and criminal invasion of Ukraine and say, "Well, we'll carry on as we are," or we take a stand, and I happen to think that it is the right thing to take a stand. What I was trying to articulate earlier is that it is a difficult judgment. We have tried to say that we will hit the Russian state

machine hard but try not to punish—being Russian is not a crime and being a Russian scientist is not a crime, and people are doing really good work that benefits the globe. These are difficult judgments, but that is normally the case in policy and diplomacy. I think that is the right thing to try to do, but I do not think you can pretend that you cannot break an egg—there are some areas of research that will suffer.

Q292 **Chair:** A final point on geopolitics. Since the Arctic Council was founded—in 1996, if I remember rightly—it has played a very important role, particularly in bringing scientists together and in a whole variety of other ways, across the Arctic. The Russians, of course, have now withdrawn or been thrown out. Do you see any future for the Arctic Council, really and truly? Will it make a significant contribution in terms of all the things it previously did with regard to the Arctic? If not, what might replace it?

***George Freeman:*** You are inviting me, Chairman, to do the Foreign Office Minister's job for him, and I am reluctant to do that.

**Chair:** We invited him to come, but he could not make it—or was not keen perhaps.

***George Freeman:*** I cannot take responsibility for him. Of course, the Russian attack on Ukraine creates huge difficulties in terms of effective geodiplomacy around Russian interests in the Arctic, and the Arctic Council, inevitably, will get caught in the crosshairs of that. But it would not be appropriate at this point to suddenly say that we think it is moribund. My approach is more to look at what we can do, and at what I as the Science, Research and Innovation Minister can do, to try to deepen our collaborations with people who do share our interests and values to try to make some progress now in those key areas and in a number of areas that the Committee has raised.

Q293 **Chair:** All right, but if the Arctic Council is more or less defunct—there is no question about it: it is more or less defunct, and it is not functioning as it used to—what mechanism or other fora could Britain engage with in trying to find international co-operation on science?

***George Freeman:*** Without accepting the premise of your question, my strong instincts are to get together with other nations who share our values and our interest in polar research and to try to create minilats—I think that is the diplomatic jargon for them—or small groups of nations who share values. My experience has been that, in polar research, Canada, the US, Norway, Denmark, Sweden and Finland deeply appreciate that. I think there is quite a lot we could do more quickly than trying to reconstitute the Arctic Council. I am very committed to trying to deepen those collaborations now.

Q294 **Cherilyn Mackrory:** Thank you, Minister. I want to turn your attention to the pressures on Arctic resources, starting with mineral extraction. We have heard that about 20 countries are supporting a precautionary pause on deep sea mining, in particular, because we are not yet sure what the effects of deep sea mining will be on the area. I do not think the UK has gone as far as to agree with that yet, but it is pushing for higher

environmental standards and saying that we are not going to support deep sea mining licences until we have sufficient evidence and so on. Can I push you on that? Do you think the UK Government should support that precautionary pause until we know more?

***George Freeman:*** To go back to the original point about ministerial responsibilities, let me say, first of all, that OGD leads, because this is split between DFT, DEFRA and FCDO—I do not want to decline to answer the questions, but I just defer to my ministerial colleagues.

**Chair:** You are answering for His Majesty's Government. You have come in front of the Environmental Audit Committee on behalf of—

***George Freeman:*** I understand that. Let me answer—

Q295 **Cherilyn Mackrory:** If I can help you slightly perhaps, what does your ministerial brief contribute to that decision, in terms of the science behind what they might be looking for, for example?

***George Freeman:*** Through NERC, we recently invested £4 million in a consortium of UK researchers led by the National Oceanography Centre, which I visited just before the recess, to provide the scientific research, understanding and evidence base to support evidence-based policymaking on reducing the risks of polymetallic nodule extraction from the sea floor. We are doing what we can in terms of the research piece. We absolutely recognise that the pressure to extract deep sea resources and the growing geopolitical pressure to commercialise in the Arctic create huge and serious issues regarding the impacts of mining activities in the fragile marine environment, and we take that very seriously.

We have committed not to sponsor or support the issuing of any exploitation licences for deep sea mining projects unless and until there is sufficient scientific evidence to demonstrate that potential impacts on deep sea ecosystems can be fully mitigated. We have shifted the burden of proof, if you like, so that applicants have to prove that they can mitigate—and we will assume they can't if they don't—and strong and enforceable environmental regulations and standards that we support have been developed by the International Seabed Authority. Our position is precautionary and conditional, and there are currently no exploration licences that I am aware of issued by the ISA for that part of the Arctic seabed that falls within the area. As you say, we take a highly precautionary approach.

Through NERC, we are investing in the science and are ultimately committed to developing a sustainable approach to polymetallic nodule mining in challenging environments.

Q296 **Cherilyn Mackrory:** If this Committee were to recommend that the Government add its name to those 20 countries that are currently calling for the pause, would you welcome that recommendation?

***George Freeman:*** Well, I would read that recommendation with great interest.

Q297 **Cherilyn Mackrory:** I will turn your attention to shipping and the marine spatial planning that is needed for safe and non-environmentally damaging shipping in the Arctic. At the moment we are looking at different challenges for shipping itself—ice blocks and adverse weather, for example—but there are also potential hazards that shipping will bring to the area, such as a different biology, species invasion, pollution and so on. Again, what is your Department doing to contribute to ensuring safe shipping for the future? This is another geopolitical pressure that is coming. Along with the ice melt comes the commercial need for a lot of our shipping companies to make savings. What is your Department currently contributing to that conversation internationally?

***George Freeman:*** We are very focused on two things: the research into impact, effect and mitigation; and the innovation that might be able to mitigate and be deployed. Principal responsibility for shipping, the polar code and marine protection sits with DEFRA and DFT. My responsibilities as the Minister for Science and Research are science, research and innovation. We are actively investing, through UKRI and NERC, in our five-year seabed mining and resilience to experimental impact—SMARTEX—project, and we have consistently nominated a scientist for election to the Legal and Technical Commission of the ISA. I could give you in writing a list of the things we are actively doing, but the marine policy side sits with DFT and the geopolitics of this pretty hot theatre sit with FCDO. I think that brings us back to where we started: the importance of getting together as a group of Ministers. The establishment of DSIT and the framework creates a necessity as well as an opportunity for us to do that.

Q298 **Cherilyn Mackrory:** Do you or your officials have conversations with industry or like-minded nations on this, and how often do those conversations take place?

***George Freeman:*** Yes, they do. Forgive me; I don't have that information with me, but I will happily write to you with it. There is a huge amount of work. I do not want the Committee to form the view that because there is not a joint inter-ministerial formal body, officials are not working together across the Departments, because they are. There is extensive work going on in this area, but I will happily write to you with some details.

Q299 **Cherilyn Mackrory:** Finally, I turn to fishing. I always have to declare an interest when we talk about fishing because I am married to a commercial fisherman in Cornwall. From experience, the impact of climate change in the Arctic is already having an effect in Cornwall, where a lot of our species are heading north and we are finding new species. This is a two-pronged question. I am again looking to you to talk to me about the science of what is happening and how your Department is supporting the industry, both here in the UK for domestic fishing—the changes that are happening here—but also for our fishermen that go to the High North and need to be up there. We talked earlier about the central Arctic ocean fisheries agreement, which I think nine nations plus the EU are signed up to. We are not yet signed up. Can you comment on when you think that might happen?

***George Freeman:*** Honestly and bluntly, I think I had better consult with my colleague at DEFRA. I wouldn't want to speculate without doing that, but I will happily have that conversation and come back to you.

**Cherilyn Mackrory:** Is that his responsibility?

***George Freeman:*** Yes.

Q300 **Cherilyn Mackrory:** Will you comment on the science regarding the species change and how we can support our industry?

***George Freeman:*** There are a number of very interesting and important research streams running, which I can give you details of. I am thinking particularly of the work that Maersk have been doing on using Earth observation data to track fish migrations. This is one of those areas where the integration of datasets—multidisciplinary research—comes together. It is one of the key pieces of research, where UKRI's multidisciplinary top slicing is funding deliberately aimed at bits of research that pull together Earth observation data, marine data and neural network data. This is an area where assimilating different disciplines and datasets is really valuable, and I will happily write to the Committee with some more information.

Q301 **Chair:** Before I call Philip Dunne, I want to pick up the question of ministerial responsibility, which we have touched on several times during your evidence. How would you react to the recommendation that our predecessor Committee made about 10 years ago, that the House of Lords Committee then made and that the House of Commons Defence Committee also made with regard to both the Arctic and the Antarctic: namely, that there should be a person in Government who can straddle all four of these Departments, and that there should be some kind of special envoy or high representative—who knows exactly what he would be described as? All those Committees have previously recommended that, and Germany, France, the EU and other countries do that. Don't you think it is time that Britain had a polar regions high representative, to use that rather old-fashioned expression?

***George Freeman:*** That is a very interesting suggestion. I am aware that the idea has been around in the ether. If that is part of your report's recommendations, I will read it with great interest.

**Chair:** No, we are not talking about what our report is; we are asking for your view.

***George Freeman:*** I think there is a growing importance, as I've set out, in a number of areas of polar research, innovation and technology—the polar theatre—in the global race for science, research, technology and innovation. This is an area that is becoming more and more important. Obviously, the Arctic and the Antarctic have different challenges, different geopolitics, different geographies and different biologies, and we have ambassadors in the FCDO, but you raise an interesting question. Is there a case for somebody to speak internationally and domestically about the importance of the issue and insist on a coherence of approach? It is an

interesting idea. Forgive me; I wasn't in post 10 years ago, but I will happily pick up the baton and have another look at it.

Q302 **Philip Dunne:** Apologies, Minister, for arriving late and missing some of your evidence this evening. I have a pretty simple question, which you again may claim is not part of your remit: from a research point of view, has any work been done to look at the impact of tourism in the Arctic? We heard during the course of our inquiries about a French vessel taking tourists to the north pole for the first time, performing a sort of rectangular voyage, and obviously taking considerable potential risk for search and rescue because it would be out of reach of any conventional search and rescue capability. Is any work being done to look at this?

***George Freeman:*** You're right; this is not in my portfolio, but it is a good question none the less. We are aware that, for various reasons, Arctic and Antarctic tourism is growing. Across Government, there is a recognition that we need to make sure that British nationals engaging in that are safe, and that tourism to wilderness areas—to areas of fragile habitat and ecosystem—should be deeply sustainable. There is quite a lot of research work going on into how you define sustainable ecotourism and all that. I think your question merits a more detailed answer on our policy on tourism in the Arctic and Antarctic, so I will happily pick that up and come back to you in writing.

Q303 **Philip Dunne:** We would be very grateful. It would be helpful to know whether a view has yet been formed in any of the Departments responsible for this as to whether any kind of limits should be placed on tourism to make sure that it is sustainable. One element of the polar code, I think, is that discharges from vessels of untreated sewage cannot take place within 13 miles of land or sea ice, which might put some constraints on the vessels' capability to cope if they have a lot of people on board.

***George Freeman:*** Rather than trying to give you a half-informed answer now, I will take happily take that question away and come back to you. For my part, I can say that we are deeply committed across UKRI and the public sector research establishments to the science and the evidence for proper sustainability policies. We need—Mr Dunne, I know this is a particular cause that you have championed—to be able to set out environmental sustainability policies that are based on good science, not arbitrary numbers. It is the environmental footprint of tourism in a particular geography that really matters, and we need to make sure that we have proper evidence to frame those policies. I will happily pick that up and come back to you with what we are doing on the research side and whether there has been a conversation; I suspect there has been at official level. I will come back to you on that.

Q304 **Chair:** Minister, thank you very much indeed. There has been a wide-ranging series of questions, and you have been very tolerant, particularly when some of these things are not within your particular brief, although I think that aspect may be one point that we will pick up in our report: the fact that there is such a wide-ranging series of ministerial responsibilities

across Government. You have been very tolerant, helpful and detailed. Thank you very much for taking the time to be here and speak to us.

***George Freeman:*** Thank you. Genuinely, I think that good democracy requires Ministers who listen and Committees that advise and scrutinise. I look forward to your report. I am not just saying that; I think you can see that I am keen to do more in this space and to be guided by your inquiry, so thank you.

**Chair:** We are very grateful. Thank you very much.