

# Environmental Audit Committee

## Sub-Committee on Polar Research

### Oral evidence: The UK and the Antarctic Environment, HC 381

Monday 5 February 2024

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[Watch the meeting](#)

Members present: James Gray (Chair); Philip Dunne; Barry Gardiner; Anna McMorris; Dr Matthew Offord.

Questions 70 - 139

#### Witnesses

[I](#): Professor Klaus Dodds, Executive Dean for the School of Life Sciences and the Environment, Royal Holloway, University of London; Dr Adrian Howkins, Reader in Environmental History, University of Bristol; and Dr Daniela Portella Sampaio, Marie Curie Postdoctoral Fellow, Alfred Wegener Institute.

[II](#): Dr Susie Grant, Chief Officer, UK, Standing Committee on the Antarctic Treaty System at SCAR (Scientific Committee on Antarctic Research), and Marine Biogeographer at British Antarctic Survey; Dr Oliver Hogg, Senior Ocean Scientist, Centre for Environment, Fisheries and Aquaculture Science (CEFAS); and Matt Spencer, Polar Oceans Specialist, WWF UK.

Written evidence from witnesses:

[Professor Klaus Dodds](#)

[British Antarctic Survey](#)

[WWF-UK, and Antarctic and Southern Ocean Coalition \(ASOC\)](#)

## Examination of witnesses

Witnesses: Professor Klaus Dodds, Dr Adrian Howkins and Dr Daniela Portella Sampaio.

Q70 **Chair:** I welcome you all to this meeting of the Antarctic Sub-Committee of the Environmental Audit Committee. I particularly welcome our three witnesses, who are joining us by Zoom. Perhaps it is easiest if you briefly introduce yourselves.

**Professor Dodds:** Good afternoon and thank you, Chair, for the kind invitation to come and address the Committee this afternoon. I am the executive dean for the School of Life Sciences and the Environment at Royal Holloway University of London. I am also professor of geopolitics and have specialised in the polar regions for the last 30 years.

**Dr Howkins:** Good afternoon. Thank you for the invitation. I am Dr Adrian Howkins, reader in environmental history at the University of Bristol. Most of my work in history has focused on the history of Antarctica, and I am the co-editor of the recently published "The Cambridge History of the Polar Regions".

**Dr Portella Sampaio:** Good afternoon, everyone. Many thanks for the invitation. I am the Marie Curie fellow in the International Co-operation Unit at the Alfred Wegener Institute in Germany. At the moment, I am also working with the European Polar Board in The Hague. I have been researching Antarctic governance and international relations for the last 12 years.

Q71 **Chair:** Thank you all very much. I want to explore the general question of the geopolitical world in Antarctica, which all three of you have a particular interest in. I want to know to what degree the British presence in Antarctica is to do with geopolitical presence, showing that we are there, and to what degree it is a scientific presence—are we there for scientific reasons? Is there a clear delineation between the two? Is there confusion between the two in some way or other? Are we absolutely certain why we are there and what we are trying to do when we are there?

**Professor Dodds:** Shall I have a first go and then see what my fellow panellists make of all this? I think the first thing is that if you look at the UK's principal agency for Antarctica, you quickly conclude that the British Antarctic Survey, as an organisation, is not a bad place to start. Since its establishment in the early 1960s, it has been very clear that BAS, as it is known for short, has a dual mission.

First and foremost, it is a scientific organisation, but, secondly, it has always been understood, ever since the earliest days of BAS, which predate the early '60s and go back to the second world war, that there has been the idea that there is a strategic presence. As long as the United Kingdom retains what we now call British Antarctic territory—or



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what was in the recent past called the Falkland Islands dependencies—it is absolutely vital that the UK retains an effective occupational presence in that part of the Antarctic. To be very clear, British Antarctic territory is three to four times larger than the United Kingdom, but clearly does not possess the population infrastructure that the United Kingdom does. Therefore, there is a lot of work to be done in establishing a presence.

The final thing, as a starting position, is that everything that we have to say this afternoon as a panel will make reference in one form or another to the 1959 Antarctic treaty, which makes it very clear that the original signatories, including the United Kingdom, understood, under the terms and conditions attached to article IV, that we agreed to disagree about the ownership of Antarctica. One thing that makes this dual mission of the British Antarctic Survey so interesting is that the British Antarctic territory substantially overlaps with an Argentine Antarctic territory and a Chilean Antarctic territory, and the price that everyone pays as signed-up members of the Antarctic treaty is that you have to be comfortable with the presence of others. The presence of others might include India, China, the United States and Brazil, but that is the price that all the signatories agreed to in order to foster good will, scientific collaboration and a peaceful Antarctica. That is the starting proposition to a question like that.

**Q72** **Chair:** All right. Let me ask your colleagues the following question. This Committee was welcomed to Antarctica by the British Antarctic Survey, and we have nothing but the strongest and highest respect for it and the work it does. None the less, the structure you describe is unique in the world, scientific organisations standing proxy for HMG. Do you think that that has come about because if there was a British governmental presence there, rather than a scientific presence, that would risk destabilising the Antarctic treaty system? In other words, is it sort of a soft approach by having BAS covering for the Government? Is that a reasonable way of describing it?

**Dr Howkins:** I agree with that—that the scientific presence is an effective way of maintaining a British influence, and more effective than having a Government presence. I challenge slightly the idea that the British system is unique. I think quite a few other countries have a similar system, where the science is representing a political structure—probably most countries, in different ways. We could discuss similarities and differences, but I think Argentina, Chile, Australia, New Zealand and the United States are all using science as a soft power in Antarctica. It is important to acknowledge that, and maybe not see the British situation as that different—

**Q73** **Chair:** Sorry—just to interrupt, I think you misunderstood me there. I think it is unique for Britain. Nowhere else in the world do we use science as a cover—it is unique for us.

**Dr Howkins:** Sorry, yes; I thought you meant among other Antarctic countries. Yes.



- Q74 **Chair:** You probably agree with the thesis that the reason why it is good to use BAS is that it is a soft power, and that if we were to use a harder power, or the Foreign Office, in some way, that would destabilise the British Antarctic treaty.

Let me ask a separate question. Given that that is the case, geopolitical stresses and strains are beginning to arise, not least because of Russia's invasion of Ukraine. Russia, of course, has a very substantial presence in Antarctica. Does the geopolitical position—does our position in Antarctica—have an important read-across to geopolitics elsewhere in the globe? In other words, does our strong opposition to what Russia is doing in Ukraine affect our relationship with Russia in Antarctica? Perhaps that is one way of putting it. Daniela, do you have a view on that?

**Dr Portella Sampaio:** I think what is interesting about the Antarctic is that this place is connected to the rest of world not only geologically, but through politics. What happens elsewhere you can see reflected in the politics of the region. You can sometimes observe that you will see conflicts or differences that are taking place in different forums elsewhere in the world somehow reflected in positions or subjects that are discussed during the consultative meetings in the decision-making forum for Antarctic governance.

- Q75 **Chair:** The Chinese have five or six bases in Antarctica. Do you think they are there for entirely scientific purposes, or do they have a geopolitical reason for being there in quite such quantity?

**Professor Dodds:** Shall I jump in, colleagues, and then please build on this as you see fit?

The Chinese are constructing a fifth Antarctic station and, like Russia and the United States before them, they are engaged in what you might think of as great power behaviour—that is, they have bases around the Antarctic continent. That probably causes the most unease for the Australians, because the Chinese have established a reasonable presence in what Australia might consider Australian Antarctic territory. Hobart has been a notable gateway—a polar gateway—not only for Australia, but for the Chinese Antarctic programme, just as Cape Town, for example, is a gateway for part of the Russian Antarctic programme.

Every member state or consultative party of the Antarctic treaty uses its scientific bases and infrastructure to not only conduct science, but establish a presence. It is worth noting that to be a consultative party to the Antarctic treaty system, you have to demonstrate that you have conducted substantial scientific research. Until quite recently, that was taken to mean that among other things, you maintained a polar station, or possibly two or three. There are exceptions. As a Committee, you went to Rothera and you no doubt saw that the Dutch have a presence there. One of the things that the Netherlands demonstrated was that it was possible to become a consultative party without operating your own bases.



The other problem we have—your question about Ukraine is very interesting—is that Canada could make a case for being upgraded to, say, a consultative party. Two countries currently object to Canada being upgraded to consultative-party status, and what I am about to say will probably come as no surprise: the countries are China and Russia.

The problem we have is that in the past we would have talked about Antarctic exceptionalism and thought that there was something very special about the Antarctic treaty and the comparative isolation of Antarctica from global geopolitical currents. That is becoming virtually impossible to maintain and is one of the many stresses and strains that consultative parties, including the United Kingdom, have to manage.

**Q76 Chair:** That was the nature of my questioning. If we are right in thinking that there is increasing geopolitical reason for being there, whether it is the British use of BAS, the five Chinese bases, the huge Russian base or the gigantic American base, these are all geopolitical, predominantly, rather than scientific reasons. Does that not of itself produce stresses and strains on the treaty system?

As a supplement to that, am I right in thinking that physical changes, particularly to ice, will mean that the presumption against material exploitation becomes more and more difficult to sustain for the same reason? In other words, both the non-military and the non-mining elements of the treaty system are being weakened by that factor.

**Dr Howkins:** I might push back a bit on the idea of geopolitical tensions being higher now than they have been. You can look back at the cold war, when some of these big bases were founded in the 1950s—the Soviet Union, the United States, the height of the cold war. That was fairly significant at that stage. We are living with a legacy of Antarctic history where many of the British stations were put in to defend British sovereignty in the 1940s and 1950s from Argentina and Chile. Those geopolitical tensions have been around for a while.

I think that climate change has the potential for increasing some of these tensions, although, again, I would think a bit carefully about potential comparisons with the Arctic, where I think it is fairly recognised that melting ice and the accessibility of resources increases the tension. The situation in Antarctica potentially is a bit different, given the amount of ice, and the difficulties of navigating in the sea despite melting ice, but that is one reason why these questions are important at the moment.

Looking at the long trajectory, however, the intersections of politics and science have been around for a long time, and we are dealing with the current iterations of that at the moment.

**Dr Portella Sampaio:** I want to complement that point. I think what is interesting is the dual use—what is actually scientific and what is actually geopolitical and how these two things are blurred. For instance, when we think about the location of research stations, these locations probably



have a geopolitical past, but at the same time, these countries have history, experience and data collected exactly at these places, so it makes sense for them to be in these areas according to their Antarctic history.

The point that we need to consider is how we can identify that the scientific research is actually legit and has scientific purpose, or to what extent it has elements that could be far more geopolitical. I think science is the best solution, and the scientists are the best ones to be in a position to identify what is scientific and what is geopolitical.

**Q77 Chair:** If you do not think it is under too much geopolitical stress, do you think it is through hope or expectation? Is that likely to be the case in the future? Are you hoping that Antarctica will remain the peaceful continent of scientific research, or do you believe it will be?

**Professor Dodds:** I think that what my colleagues are rightly cautioning is that there is a danger that we think everything going on at the moment is unprecedented, and what you have heard is that there have been stresses and strains before. However, I think you would probably find consensus among the panel on the idea that these stresses and strains are being exacerbated. For example, it was quite remarkable what happened at the Antarctic treaty consultative meeting in Berlin not so long ago, where we had walk-outs of delegates, such was the anger felt towards Russia and the full-scale invasion of Ukraine.

We also should not lose sight of the fact that whenever we talk about, for example, the prospects of mining or mineral exploitation, we should not get distracted from the fact that there is a massive fishing industry and krill industry. So the exploitation of Antarctica continues at some pace, not to mention tourism as well.

I think what most commentators would say about the Antarctic at the moment is, "Please don't take anything for granted just because this system has worked since the late '50s, early '60s". The system has worked for two reasons. The first is that, fundamentally, the decision-making governance is based on consensus, and that means that parties will often avoid taking disputes beyond a certain kind of threshold because they do not want to publicly puncture the principle of consensus. Secondly, the system has worked in part because countries have not pushed too hard on some issues that they know are quite difficult to handle.

To give you an illustration, we have not seen a huge amount of development in the Antarctic treaty system since the introduction of the environmental protocol, which entered into force in 1998. The parties have largely been content, for the last 20-plus years, to work with the existing infrastructure, imperfect though it may well be, and have tried to hold on to consensus as best they could.



I suggest that we probably need to be prepared to do some deeper, more radical thinking and explore potentially very uncomfortable scenarios that might mean, for example, that some parties choose to walk away from the Antarctic treaty system in the next five or 10 years, if they think their interests are not being realised by the current system. We need to be prepared to think the unthinkable.

**Chair:** I think Anna McMorris wants to explore that a little bit further.

**Q78 Anna McMorris:** Thank you for your answers on the treaty system. The Antarctic treaty is widely regarded as one of the most successful treaties in the world and it has more or less worked, although as you have just pointed out, there are challenges. There are challenges now with power struggles, resource challenges and in the context of climate change.

How do you feel that the treaty interacts with other international bodies? For example, I am thinking of the IMO's polar code, the biodiversity beyond national jurisdiction treaty and the growing pressures, including from the UN, to insist on further interventions to protect Antarctica, protect its seabed, ocean and glaciers. How do you feel the treaty is bearing up under those pressures? Do you think there will be some attempt to widen the treaty to include measures from those other treaties?

**Professor Dodds:** Let me give you two examples. My colleagues on the panel may have other views, but let me start with two—the polar code first, since you mentioned it.

The polar code came about through the International Maritime Organisation, which has its headquarters very close to where Parliament is, and entered into force in 2017. The IMO is an invited expert to the Antarctic treaty consultative meeting, and the polar code covers both Arctic and Antarctic waters. It is very welcome, as a particular code, because in the end it is all about trying to ensure that we have safer and secure shipping. To be clear, there are other measures and conventions in place, such as MARPOL, which addresses the issue of heavy fuel oils and whether they are used in the Antarctic.

Enforcement of the polar code is generally good, because most ships, whether they are cruise or research vessels, comply with it. So I don't think it is troubling, even though we on this panel are all very well aware that there have been mishaps involving various ships.

The BBNJ—this is the treaty that deals with biological resources beyond areas of national jurisdiction—entered into force in June last year. It is important, but it is also worth recognising that there are mechanisms within the Antarctic treaty system that do what the BBNJ wants, which is to take very seriously what is called marine spatial planning and to deal with things such as marine protected areas. But here is the challenge to the Antarctic Treaty System: it is a lot more complex now when it comes to the governance of the Antarctic and Southern ocean. All these other



agreements place further stress and examination on how effective the Antarctic treaty system is in doing what it says it will do. The classic example is marine conservation and fishing. I think that the Antarctic treaty has been better at dealing with fishing than marine conservation in recent years.

Q79 **Anna McMorris:** Does anyone else want to comment?

**Dr Portella Sampaio:** Yes, I have just one or two complementary points. What is very interesting about the BBNJ is that if you have a look at the agreement in article IV, paragraph 2—to be very specific—the agreement acknowledges all other international instruments. In that sense, the BBNJ acknowledges that there are other instruments, such as the Antarctic treaty, where the Antarctic would be its competence. But—there is always a “but”—if you look at article 20 of the same agreement, it says that in case of emergencies, if these other instruments are not quick enough to respond, in consultation the BBNJ can move forward.

There is an acknowledgement—but I absolutely agree with Klaus Dodds said that there is also this vigilance in terms of what extent the Antarctic treaty is capable of dealing with human and environmental emergencies. As Klaus said, the latest update, the normative update, with the Antarctic treaty was the protocol. The protocol has an annex VI on liability for environmental emergencies. It was agreed in 2005. We are now in 2024 and it is still not in force.

You have an instrument that some parties think has started to get outdated because other international instruments have been developing. In that case, the treaty can somehow lag behind and then make way for other forms, other instruments, to take over in case of any emergency or difficulty.

**Dr Howkins:** I think it is worth mentioning briefly that the Antarctic treaty has a history of interactions with the United Nations, going back to the 1950s when India proposed that Antarctica should come under the umbrella of the United Nations. In the 1980s, Malaysia led what was called “the question of Antarctica” at the UN, calling for a greater role for the UN in Antarctic affairs at that stage. That was based on the idea of what was then called “the common heritage of mankind”, which was a fair distribution of resources that they thought might be extracted from Antarctica. The current role of the UN in Antarctica has a history that I think we need to take into account when we are considering contemporary interactions with the UN.

Q80 **Anna McMorris:** This leads to what actually happens on the ground, and what you are saying—certainly, what Klaus Dodds and I think Daniela said—is that the treaty is better at agreeing issues around fishing than around conservation. When it comes to climate change and dealing with issues of the changing climate, which we know is essential in Antarctica, how can we ensure that the treaty deals with that threat and those challenges? I understand the Antarctic treaty consultative meetings have



been reluctant to engage directly in conversations like that. How can we ensure that discussions around climate change, the ambition, the pace of global emission reduction and the impact on the rest of the world are included? What should the UK do as part of those consultative meetings?

**Professor Dodds:** That is a very challenging question. At one level you could be slightly flippant and say the best thing the United Kingdom can do, alongside everybody else, is take seriously the 2015 Paris agreement and some of the commitments we and others have made on climate change, net zero planning and whatever else. I think it is clear that you cannot ask the Antarctic treaty to do something that it was not designed to do. When it was negotiated in 1959, we did not talk about climate change—full stop. The Antarctic treaty was designed to resolve what Adrian Howkins has talked about, which is in effect the question of Antarctica, or, to put it a slightly different way, the Antarctic treaty tried to resolve the question of who owns Antarctica by not answering the question. It was a diplomatic masterpiece to answer the question by not answering the question.

Fast-forward 60 or 70 years, and we are asking the treaty to do something that is clearly a struggle, because what you have seen in 60 or 70 years is that the treaty has had to introduce other conventions and protocols where it made sense to do so, because they were regionally specific. Our challenge going forward is that Antarctica is patently not regionally or geographically isolated. Avian bird flu is a good reminder that Antarctica is facing real biosecurity challenges. At the same time, we want to make sure that Antarctica is a model of good governance. The one thing the Antarctic treaty system has done is acted as a hope—a hopeful sign that collaborative governance is possible.

If you were to undermine the Antarctic treaty system, you might reasonably ask what implications follow thereafter for other forms of collaborative governance. That is why the BBNJ is such an interesting example, because it is a global agreement. Daniela has rightly said that it puts the Antarctic treaty system on notice that if you do not do the things you say you are going to do, other mechanisms can step in.

To be very clear, when the Antarctic treaty was negotiated in 1959, countries like the United Kingdom and the United States were in pole position. Russia and China were not there at the negotiating table. Things have moved on and I think we need to be very aware of that. We are in a very different environment now.

Q81 **Anna McMorris:** How do we make sure that issues such as global emissions reduction and climate change are not deferred to the UN COP process, and that they are taken seriously as part of the treaty negotiations and discussions?

**Dr Howkins:** Another thing to add to this conversation is the importance of Antarctic science for our understanding of climate change over the last 50 or 60 years. Ice cores from places like Lake Vostok have played a



major role in human understanding of climate change and what is going on. I think therefore that the Antarctic treaty has played a very important role in promoting the science that helps us to understand that and to be having these conversations today. Klaus Dodds made a very important about the idea of hope, and that is embedded in both the science and the politics of Antarctica.

I notice in contemporary Antarctic science an increased discussion of the cost-benefit analyses of the value of the science being done versus how much carbon is emitted, and the cost of doing that research. A relatively simple and hopeful thing that Britain could do is make sure that we do everything possible to reduce emissions from Antarctic research to mitigate and offset the emissions, and have that as a beacon—saying that the science matters but that we are also aware that, by doing that science, we are helping to cause some of the problems.

Klaus made a very good point. There is an article by Mancilla and Roberts called "the paradox of protection in Antarctica", saying that the biggest challenge facing Antarctica from an environmental point of view, climate change, cannot be dealt with on the scale of Antarctica and the Antarctic treaty system—that it is clearly a global problem but one that Antarctica has much to contribute to.

**Dr Portella Sampaio:** To complement what Adrian just said, I have done some research on the Antarctic treaty database to see when climate change discussions started, who has been proposing it and how Antarctica can address these kinds of issues. It was very interesting because it started in 1995, we had an Antarctic treaty meeting of experts in 2010, and in 2015, we had what they called a subsidiary group to discuss the climate change response, which led to reports to the consultative meetings every year. What I thought was very interesting is that the UK is the biggest consultative party proponent of discussions on climate change in ATCMs. The UK is twice the proponent compared with other countries. Of course, you have SCAR and ASOC, the NGOs, also trying to bring discussions forward, but it was very interesting to see that the UK is in the leading position in taking climate change discussions to the decision-making forum.

Q82 **Anna McMorris:** Quickly and finally, there is some discussion that in 2048, the protocol on environmental protection may come under threat, with the current mining prohibition being reversed. Some people say that that is not possible, but 2048 is now not that far away. What is your view on that? How likely is it that the treaty could be challenged?

**Professor Dodds:** I think that Antarctic scholars will smile at this point. This is one of the things that keeps us busy—often dealing with media commentary that completely misunderstands the significance of 1991 and 2048 respectively, referring to the Antarctic treaty and the protocol.

To deal with this very straightforwardly, it is true that there is a provision within the protocol that says that after 50 years of the entry into force of



the protocol—in other words, 2048—there is scope for a formal review conference. That does not mean that the protocol inevitably simply fades away, and I can reassure the Committee that you have to go through quite a complex process to make any changes whatsoever. Among other things—because this is the bit that journalists often completely misunderstand, in particular—if you want, potentially, to undermine article VII, which deals with mineral prohibition, before you could do so, you would have to have in your back pocket a plausible legal regime that deals with the very thing that you think you are trying to overturn. The irony of ironies is that the Antarctic treaty system spent six years negotiating something akin to that and then decided not to adopt it. The long and short of it is that it is complicated.

The thing that I think is more important is to bear in mind is the Vienna treaty on international treaties. What you can do, reasonably, is announce that you want to walk away from the Antarctic treaty and you can withdraw straightforwardly after two years of receipt that you wish to withdraw. Is anyone going to do that? Well, one way of looking at this is to ask the simple question, “What would you gain by walking away?” or “What would you gain by no longer adhering to the protocol?”

I could put a suggestion to the Committee that goes along these lines. At the moment, a South African-based newspaper, the *Daily Maverick*, has been reporting fairly routinely that a Russian survey ship has been carrying out seismic surveys in and around Antarctica for the purpose, potentially, of mineral prospecting. The Russians could say, “Under article VII of the protocol, we are perfectly entitled to carry out scientific research, which does not necessarily lead to mineral exploitation”. Part of our challenge is knowing what others are doing and how to make sense of it, but also to ask why a party might wish to walk away from, say, its particular international obligations. At the moment, there is more than enough concern to be had over things like fishing, which is proving a lot more accessible and lucrative for a number of parties.

**Chair:** Thank you. Partly due to me, we are making slow progress. Could I ask my colleagues, and indeed our witnesses, to speed up so that we can get through quite a lot of material by quarter-past the hour?

Q83 **Barry Gardiner:** Dr Portella Sampaio, what are we actually all doing here? How are the international geopolitical, environmental and commercial agendas overlapping? Are we simply trying to contain everybody else? Do we have a specific commercial gain that we either want for ourselves or want to stop our competitors from obtaining? So far, all that I have heard makes this sound rather like a great game, with the one exception that there is some decent climate science that happens to go on there, but the rest of it seems to be geopolitical posturing. You have spent 12 years on this; you have your secondment to the treaty itself. Reassure me.

**Dr Portella Sampaio:** Great question. Yes, there is indeed an overlap between all those interests. I would answer that, as they are everywhere



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else on this planet, environmental, geopolitical, economic and scientific interests are merged.

After observing and studying the Antarctic treaty—maybe I am naïve, or I have an optimistic perspective—I think the Antarctic treaty is promising, and it is safer than other kinds of instruments. It is very difficult to be in Antarctica without relying on others. Search and rescue is very important and needs co-operation. The costs of trying to go there on your own are quite high. To go to the beginning of your question, yes, it is about encouraging others to try to engage in this region. The level is too high, in terms of expense and expertise.

At the same time, I remember one talk I had with a tourism expert who told me that what is nice about Antarctica is that we can try to do better there in comparison with what we did not do in our own societies, in our own countries. Antarctica, being this distant land that is far away, gives us the opportunity to do better and to co-operate and dedicate to science. It is very difficult to try to think that we are going to be there based on only one single goal or objective; things merge. The characteristics of Antarctica—its distance, its hostility in climate and weather and environment—force us to co-operate for the moment, which I think is a strength of the system.

**Q84 Barry Gardiner:** I have heard that before: that you have to do things together in the Antarctic and, therefore, it is a good lesson for the world to learn. Tell me what the treaty has achieved positively—not what it has stopped but what it has achieved.

**Dr Howkins:** Can I jump in?

**Barry Gardiner:** By all means. I am open to the truth from whatever source it comes.

**Dr Howkins:** I think that many of you have had an opportunity to visit Antarctica recently, and what a fascinating, interesting place it is. If we think about the history of British interests in Antarctica, going back to Captain Cook in the 18th century, this is about the exploration of the unknown, learning, science and getting a better sense of the world. That plays all the way through British Antarctic involvement to the international geophysical year of 1957-58 and into the Antarctic treaty.

It is worth noting that Britain was the first country to ratify the Antarctic treaty. It was in British interests at the time, and I would argue that it is very much in British interests to support it. The history of Captain Scott, Shackleton and Wilson, the stories that many of us will have grown up on—that fascination plays into the Antarctic treaty and the science that is being produced. I think there is a tendency to focus on the climate science because that is one of the most fascinating—

**Q85 Barry Gardiner:** Dr Howkins, you are wrapping me in the flag when I asked a very simple question. The question was: what has the treaty



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achieved positively rather than negatively? It may have stopped other people from doing things that we do not like, but what has it achieved positively?

**Dr Howkins:** It has promoted a fantastic array of Antarctic science. There are many books on the history of Antarctic science at many different scales—from the microscopic organisms in the soils to geomagnetism and interplanetary astronomy. Some fantastic work is being done in Antarctica, much of it by the British Antarctic Survey.

Q86 **Barry Gardiner:** Are you saying to the Committee that that work could not have been done without the treaty?

**Dr Howkins:** I think it would be very hard to conduct the science in a situation of competition, rather than the collaboration that was put in place by the treaty. That is where two things are linked. The science is supporting the politics, but as a result, science has flourished in Antarctica. I would argue that that is one very positive thing that has come out of the treaty, as well as peace and some of the things that you are suggesting that are stopping others. I think, however, that we need to pay attention to the remarkable history of science in Antarctica over the last 50, 60 years and before.

Q87 **Barry Gardiner:** Professor Dodds, do you have anything to add? I saw you smirking at one stage.

**Professor Dodds:** I can probably remind you that in the late 1950s, the United Kingdom was going to pull out of Antarctica altogether. There was a profound fear that if we did not have something like the Antarctic treaty, we were simply going to be out-horse-powered by the United States and the Soviet Union. The strongest advocate of the Antarctic treaty of 1959 was the United Kingdom.

One achievement, I suggest to the Committee, is that it has allowed us to keep British Antarctic territory. There was a concern that we did not have the resources and the political will amid so much turmoil to maintain a presence there, and the treaty protected our interests. Some of those interests were scientific, some were territorial and some were resource. However, I do not underestimate something else: prestige. We did not want to be seen to be withdrawing from Antarctica because we did not have the money. The Treasury agreed to the establishment of the British Antarctic Survey because it was reassured that the Antarctic treaty put the question of contested claims to one side.

**Barry Gardiner:** I will come back to our treaty scholar. Is that your assessment of what the treaty has achieved—that, on the one hand, it has been facilitating science, and, on the other hand, it has allowed the UK to gain international prestige?

**Professor Dodds:** It also stopped the Antarctic becoming a nuclear testing zone. That is quite an achievement, and the United States was contemplating using Antarctica in the 1950s as a nuclear test site.



**Q88 Barry Gardiner:** What about the countries that are increasingly entering into Antarctica? We have spoken about China and India to a certain extent. What do Iran and Turkey want to gain from it? What should our approach in the UK be towards them wanting to be part of the scene?

**Dr Portella Sampaio:** Iran became a member of the Scientific Community on Antarctic Research, SCAR, in 2014, if I am not mistaken, so the Iranian approach to Antarctica goes back 10 years, which started a scientific pathway. Whether these scientific interests will be combined with political interests—I always think that we need to listen to Iranian scholars or scholars from that country. The UK has such a great advantage because you receive students and researchers from everywhere in the world and that creates a great opportunity to try to understand better what the political organisation and maybe the political interests of a specific country are.

Turkey has established its Antarctic programme. It is a member of the European Polar Board and has established a polar research institute, and it is quite engaged in becoming a relevant Antarctic player, as far as I know, with scientific research.

**Q89 Philip Dunne:** If I may briefly go back to the treaty and the UK's obligations under the treaty, you have explained clearly the benefits. What are the liabilities in terms of what we are supposed to be doing under the treaty and are we fulfilling them?

**Professor Dodds:** One of the things that I think all the panel would reinforce is that the United Kingdom is arguably one of the most active and invested members of the Antarctic treaty system and has been since its inception in the late 1950s. There are some obligations that parties have to one another that turn out to be more difficult than you might imagine. For example, the Antarctic treaty is very clear that there is a right to inspect other countries' bases. That has not always proven as straightforward as we might wish, partly because some parties do not always make it as straightforward as they should do when it comes to inspection. Another issue that we have not talked about—

**Q90 Chair:** Sorry to interrupt. Were you thinking of China there?

**Professor Dodds:** No, I was thinking of an infamous incident in 2018 involving a Russian research station and a Norwegian party not being able to land and inspect. It is the so-called "Novo incident" and I am happy to send the Committee the details.

**Q91 Chair:** Are the Chinese bases therefore open to inspection?

**Professor Dodds:** Yes, every party who is a signatory of the Antarctic treaty must agree to the inspection regime. It was a crucial confidence-building measure that came with the treaty itself.

I will make one other observation, which touches upon the question in part about obligations. One of the challenges the United Kingdom has is



that we have overseas territories, particularly South Georgia. South Georgia's relationship to the Antarctic and the Antarctic treaty is an interesting one and we have some productive challenges. When it comes to the overseas territory, South Georgia, a key issue for the UK is fishing and fishing licensing, which helps to generate revenue for South Georgia. We had an interesting case recently where Russia objected to fishing licences around the waters of South Georgia, and, in principle, the United Kingdom should not have issued quotas for the waters around South Georgia, because there was a failure to agree those quotas. We went ahead and did it regardless, despite Russia's objections, and we were then promptly publicly chided by the United States for not following our obligations under what is called the CCAMLR system within the Antarctic treaty system.

That is an interesting example where sometimes the obligations, the rules, do not always align as straightforwardly as we might wish with our own very particular interests in the south-west Atlantic.

**Q92 Philip Dunne:** On the commercial interests for fisheries, is there any overlap of the territorial waters between overseas territories and the Antarctic claim of the UK, or are they separate?

**Professor Dodds:** I will answer that very quickly and then other colleagues please come in as well. Again, you have a productive tension. The first thing to bear in mind is that Argentina counter-claims South Georgia anyway, and has done for an awfully long time, along with the Falkland Islands. The second thing is that what is called the CCAMLR zone of application extends beyond the formal area of application of the Antarctic treaty. One of the things that the United Kingdom and the South Georgia Government must manage is the obligations that CCAMLR, this fishing convention, places on parties, while at the same time wanting to protect the interests of South Georgia, including the territorial waters and exclusive economic zones.

It is a common predicament to many states that have island territories in and around the Antarctic, in terms of getting the balance between your particular sovereign territorial interests and the wider obligations that you have within the Antarctic treaty system.

**Q93 Philip Dunne:** A final quick question from me. This Committee has also been looking at the Arctic, where the UK's Arctic framework is in existence. Do you think that there should be a similar UK strategy for the Antarctic? Perhaps Dr Howkins might like to come in on that.

**Dr Howkins:** It is a very interesting question. I think that there are obvious connections historically between the two polar regions. There are also significant differences, and that was one of the major focal points of our book on the history of the polar regions, looking at those similarities and differences. We have talked quite a lot in this Committee about the political value of science in Antarctica. If you write a document saying that you are doing science for political purposes, you lose some of that



political value. There is potentially a case simply to get on with doing the science through the British Antarctic Survey.

Many other countries, as you will be aware, have policy documents for Antarctica. Having said that, they outline a country's interests and plans for work in Antarctica. I was looking at the Australian one that was updated in 2022. I think one thing to be cautious of, if an Antarctic strategy document is developed, is what the implications of that might be on UK policy in the Arctic as well, and not to make too many assumptions about shared interests or connections that may have an impact in the Arctic, as well as Antarctica.

**Q94 Philip Dunne:** Of course, it would be a scientific strategy rather than a geopolitical strategy. If we are spending close to £1 billion in the current parliamentary term in the Antarctic, people might question what it is for and what is the context, rather than just assume that we should do this because we have a treaty obligation that we need to fulfil.

**Dr Howkins:** I do not have a strong opinion either way. I think that there is a good case for doing that to outline a position—as you say, why we are spending this money—but there is potentially also a case for carrying on with the science, explaining why we are doing the science and allowing other things to fall into place.

**Q95 Dr Matthew Offord:** The relationship that the international community has with Russia has many effects. We have seen that not only in Ukraine but also now in the middle east. There will no doubt be implications for the Antarctic region. We have heard, on another visit, that the Arctic Council has had to suspend various decisions because of that. What implications will this have for the region of Antarctica, and how should the British Government react to the change of conditions there? Professor Dodds, you have raised some of these issues in your evidence to us.

**Professor Dodds:** It is an important question, and it is important to say several things. First, President Putin is very strongly taken with the idea that Russia is a polar power, and he and others do not just mean the Arctic. In 2019-2020, when we had the 200th anniversary of the sighting of Antarctica, the Russian Government were very quick to remind themselves and others that they thought it was all down to somebody called von Bellingshausen who was indeed the first to sight Antarctica. Others might take a different view.

What matters substantially in more recent times is that if you look at Russian statements, whether it is foreign policy-related statements or specifically around the Antarctic, there is absolutely no question but that Russia thinks of the Antarctic as a strategic priority, and that Antarctica—like China—is framed as a resource frontier. Russia has been at times hostile to marine protected areas, in part because it is worried that others are using fishing conservation to stop Russia potentially becoming a larger fishing nation in the Southern ocean. Russia has also shown itself



willing to engage in egregious behaviour that fundamentally challenges—indeed, undermines—the spirit of consensus and good will.

The most notorious incident involved a fishing vessel called FV Palmer in January 2020, when I think it is fair to conclude that Russia lied about the location and the purpose of the Palmer, and others also concluded that the Palmer was engaged in illegal fishing. That is quite a charge to put to one of the oldest consultative parties, and there is good reason to think that Russia will remain a difficult, unco-operative member of the Antarctic treaty system. The United Kingdom and its allies will have to be comfortable with that even though it is distinctly uncomfortable.

Q96 **Dr Matthew Offord:** Does anyone have a view on how the British Government and the other signatories to the convention should react to that, rather than just being simply uncomfortable?

**Dr Howkins:** Historically, that has been the case since the Soviet Union became one of the founding 12 consultative parties in 1959. Having your enemies within the system has been a founding principle of the treaty, and we have experience of making it work and getting on with it. Again, it is a significant change, and the geopolitics of the last couple of years are having a major impact, but I think the diplomats within the Antarctic treaty system are used to dealing with this kind of thing. It would not be a major concern beyond the fact that it is difficult.

Q97 **Dr Matthew Offord:** Beyond Russia, are there any other geopolitical tensions?

**Dr Howkins:** Argentina and Chile have not gone away. They continue to claim the same part of Antarctica as Great Britain. We have talked a bit about China already, and Iran and Turkey have been mentioned. The question that was asked towards the very beginning of the Committee about why geopolitical tensions play out in the Antarctic is very true. As the Antarctic treaty expands and brings in new members, those tensions will increase, but within the framework of what has proved to be quite a successful and robust treaty system. It is not easy work, but it is work that is being done quite well.

**Dr Portella Sampaio:** Just to complement that, it is not necessarily geopolitical, but you could observe that there is the east-west tension between parties. Especially when we are discussing climate change, there is also a division between north and south. I think it is very interesting to observe the discussions and the negotiations that happened in the UN after CCC about how we respond to climate change. That is affecting the way the Antarctic treaty is framing climate change, and the disputes that we have in these other forums are reflected there as north and south as well. I would think about to what extent east and west overlaps with north and south, so the global south would actually be handing towards the west or to the east. That is another cleavage that would be interesting to observe.



**Q98 Dr Matthew Offord:** What I have taken from this discussion today, particularly from Professor Dodds, is that there remains some tension with certain countries. What is your view on the ability of the treaty to allow inspections to take place between the different nationalities on Antarctica? We know that since covid a lot of issues have not come up to speed that were previously being registered and inspected. How has that had an impact on the inspection regime in Antarctica by different nationalities?

**Professor Dodds:** There is no question but that the pandemic took a toll on Antarctic governance on and off the ice. As we are doing today, Zoom diplomacy, Zoom evidence sessions, are fine for certain contexts, but also what we discovered is that it is often easier to say no when you are talking to one another on Zoom as opposed to in person. One of the things that the treaty system prided itself on was the parallel twin-track diplomacy corridor talk, meeting informally, building a community of like-minded individuals. That has proven harder to maintain and that degree of difficulty was arguably ratcheted up way before the pandemic.

It has proven tougher to do the business of the Antarctic treaty, not least because you are seeing different kinds of delegations turning up to the Antarctic treaty meetings, to the CCAMLR fishing meetings. The Antarctic is no longer composed of a community, as I say, of science diplomats. That is one big shift. Another has been that we have seen public health being used as an excuse not to do things—so the real worry has been that we say that public health means that we cannot have independent observers on fishing vessels to check that fishing is being done in an appropriate and quota-like fashion.

We are also concerned that the pandemic does not become an excuse not to return to—as it should not—the face-to-face meetings. To be fair, one of the ways that the Antarctic treaty system has tried to respond to some of these pressures is by, last year, calling a special meeting in Chile, for example, to try to get back on track things such as marine protected areas. To be completely fair to our diplomats in the UK and beyond, there is a recognition that there needs to be a great deal more investment in this face-to-face diplomacy and to make sure that consensus becomes an apex of achievement and not a shorthand reference for the lowest common denominator.

**Q99 Chair:** Before I let you go, can I ask you one general question? Philip Dunne hinted at this in a diplomatic way, but I might be rather less diplomatic. You may have had the great good fortune to read the report that this Committee produced in September or October last year on Britain's role in the Arctic. Without simplifying it, we concluded that Britain was taking insufficient interest in the Arctic and that we could do a great deal more, being only 400 miles away from the Shetlands.

We are only halfway through our inquiry on Antarctica, but it is perfectly plain that Britain has an enormous investment in Antarctica, whether we are talking about the British Antarctic Survey, HMS Protector or the



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Falklands. Do you think, from a strictly geopolitical standpoint, that we have it wrong? In other words, are we spending a vast amount of our diplomacy and our treasure there, which is of relatively low geopolitical importance, and ignoring one that is of huge geopolitical importance to us, namely the Arctic? Am I being entirely unreasonable?

**Professor Dodds:** Can I offer you a very quick observation? Twenty years ago, I wrote a book called "Pink Ice: Britain and the South Atlantic Empire". One of the arguments I made—I do not think I would change my view on this—is that the Antarctic is not divorced from South Georgia and the Falkland Islands. In the British geopolitical imagination, if I can put it like that, I would always stress that if you degrade in any form whatsoever Britain's activity in the Antarctic, either within the diplomatic context or on the ice itself, you run a risk that there may well be a set of unintended consequences.

I remind the Committee what happened in 1980-81, when decisions were taken that proved to be unwise. That is not to say that I think Argentina is going to reinvade the Falklands next year or anytime soon, but just to note that in 1981, we did not have to deal with the spectre that we have now of Russia and China courting Argentina in a way that was not the case 40-plus years ago. The world has become more complex, as have the geopolitics of the South Atlantic and Antarctic.

Q100 **Chair:** Investment in Antarctic is perfectly justified, but you did not touch on whether our investment in the Arctic is too low. If I remember rightly, you were an adviser to us on that, Klaus. What about your colleagues?

**Professor Dodds:** On the Arctic, just to be super-clear, there is a profound difference. Clearly, for example in the UK context, we have a British Antarctic territory to formally consider along with two other overseas territories. Our position in the Arctic is inevitably more complicated, because we have eight Arctic states to think about and, of course, accompanying indigenous people. I think the previous report rightly highlighted that it is a different kind of space, but it carries with it its own complexities.

**Chair:** Okay. I thank all three of you. You have been extremely useful in our discussions and our inquiry. If you think of other things that you wish you had said, what the French call "L'esprit de l'escalier"—"thoughts of the staircase"—please feed them into the Committee after this in writing or in person. We will be discussing these matters for another three or four months yet before the final report is produced. We want the report to be something that the entire polar community admires, respects and uses for good purpose in the future, so bright ideas you might have would be very much welcome.

For now, thank you very much for your time and effort in giving evidence to us this afternoon. You can go or stay, and we will invite our second panel to come and join us.

## Examination of witnesses

Witnesses: Dr Susie Grant, Dr Oliver Hogg and Matt Spencer.

Q101 **Anna McMorris:** Welcome, everybody. I want to ask some questions about the role of the environmental protocol in protecting biodiversity in Antarctica. First, I will ask Dr Grant: how effective is the environmental protocol in protecting Antarctica's environment and ecosystems, especially as we see the challenges of climate change impacting Antarctica and the polar regions first and foremost?

**Chair:** Sorry, can I interrupt? For the sake of *Hansard*, perhaps our guests could identify themselves for the record, starting on my left.

**Dr Hogg:** I am Dr Oliver Hogg. I work at CEFAS, which is the Centre for Environment, Fisheries and Aquaculture Science. I am a marine ecologist with expertise in seabed ecosystems and fisheries' interactions with those. I have a specific interest in South Georgia and the South Sandwich Islands.

**Dr Grant:** I am Dr Susie Grant. I am a marine biogeographer at the British Antarctic Survey, and my work there focuses on marine conservation, fisheries management and marine protected areas. I also currently hold the position as the chief officer of the Standing Committee on the Antarctic Treaty System within SCAR, which is an international scientific organisation, the Scientific Committee on Antarctic Research. That group provides SCAR's advice through to the Antarctic treaty system.

**Matt Spencer:** I am the polar oceans specialist at WWF UK, acting as the NGO adviser to the UK delegation to CCAMLR.

Q102 **Anna McMorris:** Let us put my question to Susie, on how effective you think the environmental protocol is.

**Dr Grant:** The protocol came into force in 1998 and, at that time, it also established the Committee for Environmental Protection. The key thing that it does is maintain Antarctica as a natural reserve, and it is devoted to peace and science—so maintaining that objective in the management of all human activities with the exception of fishing, which is covered elsewhere in the treaty system. It has several annexes, which cover things such as environmental impact assessments, the protected area system, non-native species and pollution, waste and other things associated with human activities.

I think that, over the years, it has been quite effective in maintaining some very high standards environmentally and for human activities in the Antarctic. As with the rest of the treaty system, the Committee for Environmental Protection operates by consensus in providing its advice to the Antarctic treaty parties on the environmental measures that they need to take.



Decision making can be slow; progress can be slow. In recent years particularly, efforts to establish and develop the protected area system and to look at how the parties can take action to try to mitigate the effect of climate change in Antarctica—the response to climate change—has been a difficult thing to progress under the protocol. It is slow progress, but I think it has maintained a pretty high standard of environmental protection through that consensus among the parties.

**Q103 Anna McMorris:** Matt Spencer, do you think it is adequate? Do you think this protocol needs some new tools, an enhanced approach? You have the FCDO leading calls for enhanced protection for certain types of species—emperor penguins, for example—which are especially vulnerable to climate change, but there are numerous species and areas of biodiversity at risk. Do you think that there needs to be a different or an enhanced approach?

**Matt Spencer:** Yes. It is a good question; there are two answers. The tools are there but they need full implementation. For example, on emperor penguins and the specially protected species, the tools are there. However, with Antarctica, for a number of years, the profound effects of climate change are coming to the fore, so tools that were designed in the late 1980s and early 1990s are there and could maybe do with refreshment. There are now new globally leading best practices for the environmental impact assessments. It could be more of a refresh and full implementation, rather than to chuck the baby out with the bathwater.

**Q104 Anna McMorris:** Are you saying that the environmental impact assessments do not cover enough, and are not adequate?

**Matt Spencer:** They could do with a refresh. For example, taking into better account the carbon footprint within environmental impact assessments could be looked into further. The tools are there, but it is about the full implementation that goes alongside that.

**Dr Hogg:** My expertise falls further offshore, so the environmental protocol covers human impact, not including fishing—so coastal and terrestrial things. I have nothing to add.

**Q105 Anna McMorris:** I will stick with Matt Spencer because WWF told us that there are scientists who consider that many of the Antarctic specially protected areas, ASPAs, are inadequate. They are under-representative and at risk, so only 2% of the continent is covered under them. What can be done under the environmental protocol to address this and to ensure that they cover the areas that need to be covered? Do they need to be expanded, or are there other ways in which biodiversity and Antarctica can be protected?

**Matt Spencer:** Great question. ASPAs, the Antarctic specially protected areas, are a key regulatory mechanism for protecting areas of Antarctica of key importance and biodiversity. WWF, among others, has openly said that it is under-representative. As most people will be aware, Antarctica



is very heterogeneous in the ecosystems, landscapes and seascapes around it. There is a way forward to this. We do not need to reinvent the wheel. A joint SCAR and CEP workshop was held in 2019, and it recommended, to be taken forward, that the CEP initiated a programme of work to develop a framework for systematically developing protected areas. A recommendation that was passed on was that the ATCM should act on this recommendation immediately. We would reiterate that the outcomes from that workshop should be pushed through.

You flagged that currently less than 2% of ice-free areas of Antarctica are protected under the ASPAs. If we are going to live up to the 30x30 ambitions, this is a way of pushing that along.

Q106 **Anna McMorris:** Susie Grant, what is your opinion of the ASPAs and whether they need enhancing?

**Dr Grant:** Yes, they certainly do need enhancing. As Matt said, the tools are there; it is just a matter of implementing them. That is not always a quick or a straightforward thing to do. A number of efforts recently have taken a more holistic view of the system as a whole—so looking at how you would represent a range of different environments in a very comprehensive protected area system—because, at the moment, they are not representing the full range of habitats. It takes a lot of time to implement these areas, and that is one of the biggest workload issues that the Committee for Environmental Protection deals with—going through and evaluating proposals for new protected areas, establishing management plans, and getting everyone to agree on that.

The UK has historically been a very active proponent of protected areas, and my colleagues in BAS spend a lot of time working on that, reviewing existing protected areas and updating them, and writing draft management plans. It will take time for that to become established.

Another thing that probably is not being done very well at the moment is looking at the impact of climate change on the existing protected areas, and then looking at additional areas that would need to be implemented to protect areas that may be either particularly vulnerable to the impacts of change or perhaps having areas that would be more resilient. You want to keep those as refuge areas that could be protected into the future. Understanding where those areas are is important, and then implementing a protected area system.

Q107 **Anna McMorris:** How do the geopolitics come into play in ensuring that those existing areas are properly enforced and in terms of looking at expanding them to other areas? Where are the blockages in the geopolitics and the coming together, the diplomacy, in those negotiations and discussions?

**Dr Grant:** Enforcing Antarctic specially protected areas on land and in the near shore is not such a big problem. Generally, they are fairly well adhered to under the system of permitting and the national competent



authorities managing those. Having a system where more parties are involved in the process of identifying, designating or proposing these areas is critical. To date, that has been done by a relatively small number of parties, and it is often those with the stations nearby, with the scientific expertise in a region, that will focus their efforts on those. The UK, for example, has proposed several protected areas but largely close to the stations that are operated by the UK.

I think that there is more co-operation between groups of parties who have interest in a region or have scientific expertise, who would come together to take on the job of working out where those protected areas should be and doing the scientific baseline work to get them established. That is probably a way forward—to try to do that and involve more parties in that job.

**Q108 Anna McMorris:** I am getting from your answers to this question that this is not a huge challenge, whereas in your evidence this is a huge challenge. In your answers you are saying, “We are coming together. We are doing the science. We are having these discussions.” What do you say needs to happen?

**Dr Grant:** More of it. It is a huge challenge, for sure. There are small steps being made and it is incrementally moving forward, but to establish a comprehensive protected area system that is doing all the things we need it to do—

**Q109 Anna McMorris:** That is not happening at the moment?

**Dr Grant:** Not yet.

**Q110 Anna McMorris:** I want to turn to Oliver Hogg and the Blue Belt programme, as you oversee the marine area. To what extent does this address protection and biodiversity in Antarctica and across the overseas territories, including South Georgia? What do you think the UK needs to look at to address some of the challenges? What are the challenges, future and current, within that area?

**Dr Hogg:** There is quite a lot to unpack there. The Blue Belt programme is a flagship UK Government programme. It operates across the UK overseas territories, so it works to enhance protection of around over 4 million sq km of the world’s oceans. In the Southern ocean and the South Atlantic, this includes the South Georgia and South Sandwich Islands protected area, and over the past few years, there has been a significant amount of research funded and done through the Blue Belt programme around South Georgia. Key to that has been understanding the unique ecosystems around those islands. South Georgia and South Sandwich Islands are a haven for wildlife, vast colonies of penguins and seals, returning and recovering populations of whales, and also a lot of endemic species that live on the sea floor. It is an important place in the world to understand, study and conserve.



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As part of the Blue Belt programme, we have conducted research expeditions down to the area. Back in 2019, we had a big survey that went to the South Sandwich Islands—this is a remote area that we knew very little about. We conducted surveys of the sea floor, mapping areas for the first time, looking at what animals live there and whether there were any potentially negative interactions with the small fishery that operates there, to ensure that we are following a precautionary approach and that we are looking after those ecosystems.

Also, as part of the Blue Belt programme, we work with the South Georgia Government and with industry, so we use the fishing vessels that operate in the waters around there as research platforms. We have them conducting work to better understand fishing impacts on the environment.

Within the Antarctic more broadly, Blue Belt has gone a long way in supporting some of the research within CCAMLR into krill fisheries around the Antarctic in previous years. So a lot of work has gone through the CCAMLR system funded through Blue Belt.

In answer to your follow-up question about what is the direction of travel, or what areas we want to move into—

Q111 **Anna McMorris:** Do you think it is working? Is it living up to what you hoped it would do, and does it need to change? Does it need more funding? Does it need expanding? Give me your thoughts on where the programme is now—which you have just done, but the challenges it faces. Do you think more can be done?

**Dr Hogg:** I guess the immediate challenge is funding. The current cycle of Blue Belt funding is confirmed for the next financial year, so up until March 2025, I think, and then there is some uncertainty as to what will happen with that. Hopefully, the programme will continue.

Q112 **Anna McMorris:** It is funded directly from the FCDO.

**Dr Hogg:** Yes.

Q113 **Anna McMorris:** What is the amount of funding for this financial year?

**Dr Hogg:** I don't know off the top of my head across all the territories or specific ones, but I am happy to get back to the Committee with that information.

**Anna McMorris:** It is finalised for the next year. It would be good to know how much that is.

**Dr Hogg:** As I understand it, it worked in a three-year cycle, so this next financial year is wrapping up that area of science. Only recently—last week—we had a gathering of scientists as part of the Blue Belt programme to look ahead to where the programme was moving and where we saw it going.



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One of the key areas that it can develop is in the co-operation between the overseas territories. You have these lessons learned from different overseas territories around the world—a really well-established MPA at South Georgia, and newer MPAs came online at Ascension Island, St Helena, Tristan da Cunha. A lot of cross-seeding of ideas and support can go on between the overseas territories. In fact, we have a meeting in London in a few weeks' time where all the overseas territories will come together. That is an opportunity to—

Q114 **Anna McMorris:** Does it work with any other countries? Do you collaborate with Chile or any other countries that operate down in Antarctica?

**Dr Hogg:** Not directly, but through platforms such as CCAMLR, which is an international organisation where that cross-seeding happens. The programme itself is very much focused just on UK overseas territories.

Q115 **Chair:** Is there any purpose in getting all the OTs together? Montserrat and Antarctica have nothing whatsoever in common, do they, apart from the fact they are owned by Britain?

**Dr Hogg:** We face some of the same challenges; for example, climate change is a ubiquitous challenge that is facing the different overseas territories. It challenges them in different ways, but some of the questions remain the same. For example—Susie Grant just alluded to it—how can you future proof the design and designation of marine protected areas? How can you make them resilient to climate change? Are there structures that you can put in place to better monitor changes in the climate, or are there certain areas that we should prioritise because they act as refugia in a changing climate? I accept your point that these are very different geographical and environmental places, but some of the challenges are shared.

Q116 **Philip Dunne:** Can we pursue the effectiveness of CCAMLR acting as a governing body for fishing in the oceans? Is it effective?

**Dr Hogg:** Yes, I think is the short answer. I will slightly push back on, I think, Professor Dodds's comment earlier that implied quite a large-scale fishing operation within Antarctica. I do not think that is particularly true. There are three fisheries in Antarctica. One is for icefish, which is very small scale. During the 1970s, there was quite heavy exploitation and then there was a closure, a moratorium, during the 1990s and it has not picked up, so that is not a going concern.

Toothfish is another fishery. This is fairly geographically constrained, so that occurs around South Georgia, east Antarctica, in the Kerguelen Islands, a French dependency, and it also occurs within the south Pacific sector of the Antarctic. The toothfish fishery is underpinned by a very precautionary approach to stock assessment, to set the quotas and catch limits throughout Antarctica.



The largest fishery within the Antarctic is for krill. To put that in some kind of context, krill across the entire Southern ocean probably accounts for about 380 million tonnes, so that is the entire stock, and that varies year on year due to environmental factors—for example, the condition of sea ice and things like that. That fluctuates, but roughly speaking half of that will probably get eaten by fish, whales, penguins and squid. In the Antarctic, krill is only fished within area 48—this encompasses the Antarctic peninsula and the Scotia sea and South Georgia. Again, a very rigorous stock assessment is put in place—a very precautionary measure—to ensure that population remains healthy and is self-sustaining. The estimate for—

**Q117 Philip Dunne:** Who is doing this? Who is making this estimate—CCAMLR?

**Dr Hogg:** How CCAMLR is structured is that there are specialist scientific working groups. There will be a specialist krill assessment group or an acoustic group that looks at krill. There is also a statistical modelling research working group and there is a stock assessment working group. These have international contributions from all the members of CCAMLR that wish to contribute to that scientific discussion. That moves the science forward. Those working groups then feed into the scientific committee, which assesses all of the science presented from the working groups. That is passed on to the commission, to the more political level, for things to be pushed through in that way.

From the stock assessments that are developed through the working groups, for the whole area 48—encompassing South Georgia and the Scotia sea—they put a figure of about 5.5 million tonnes of krill being a sustainable level that could be taken. But because there are lots of krill-eating predators—penguins, whales, seals—and important colonies around the peninsula especially, the trigger level or the quota for that krill is set way lower than the 5 million; it is really precautionary. That is set at 620,000 tonnes, of which not all is taken.

I think that over the last few years, it is typically about 350,000 tonnes to 450,000 tonnes, so not all of the quota is taken from South Georgia and the South Sandwich Islands, for example. The South Georgia and South Sandwich Islands Government do not issue the licences. Although there is a quota assigned to that region, it is not actually taken. What ends up being taken in krill biomass from the Antarctic in the overall picture is very small.

**Q118 Philip Dunne:** Other nations that have responsibility for certain parts of the ocean issue licences in those parts of the ocean. It is not done by CCAMLR; it is done by individual nations.

**Dr Hogg:** No, it goes through CCAMLR.

**Q119 Philip Dunne:** You have just said that the Government around South Georgia issues fishing licences.



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**Dr Hogg:** South Georgia is a slightly separate beast, in that it has autonomy to basically go by the rules and regulations of CCAMLR, but they can set their own measures in place. They are responsible for ordering it.

Q120 **Philip Dunne:** Instead of CCAMLR?

**Dr Hogg:** No. South Georgia Government have autonomy to issue licences or not.

Q121 **Philip Dunne:** I am a bit confused about this, but I probably need to look at it on the map. We have heard in the previous panel about the dispute between the UK and Russia over South Georgia. Could you explain how that fits within what you have described, or is one of the other panellists more of an expert on that?

**Dr Hogg:** I can start the ball rolling and people can come in. The dispute that was mentioned earlier pertained to two fish. There were independent assessments done by CCAMLR of each of the stock assessments for two fish within the CCAMLR area. One of those stock assessments was for South Georgia. That was deemed by every party in CCAMLR—except Russia—to be precautionary, scientifically rigorous and thorough. Scientifically, it was perfectly acceptable and agreed upon by all other nations. I think the dispute is more one of politics than the actual science itself.

**Matt Spencer:** Just to completely concur, it is a geopolitical move not based on science. It is manoeuvring.

Q122 **Philip Dunne:** I have a final question about CCAMLR. Can you define for us the debate around the concept of rational use as opposed to precautionary principle, which sounds a bit more, self-evidently, intelligible? What does "rational use" mean?

**Dr Grant:** The CCAMLR convention's central objective is the conservation of Antarctic marine-living resources. Within that, it has a statement early in the convention where it says, "For the purposes of the Convention, the term 'conservation' includes rational use". Rational use is the harvesting and the use of those resources.

It has never been defined what rational use, as a term, means exactly in the convention itself, but the overarching principle is conservation. As I interpret it, I think fishing is allowed to take place as long as it is within the principles of conservation, and the CCAMLR convention goes on to set out quite specifically what its principles of conservation are. They include things like preventing the decrease of any harvested population below a sustainable level, maintaining the ecological relationships between all of the different components of the ecosystem, preventing any changes that cannot be reversed and allowing for recovery where necessary. They are taking into account not just the impacts of harvesting, but the wider impacts of environmental change as well.



Those principles of conservation are set out in the convention. To go back to your original question of how effective CCAMLR is, it is quite unique in the precautionary and the ecosystem-based approach it takes in comparison to the way that fisheries are managed regionally elsewhere in the world, which are often quite single-species focused rather than the whole ecosystem.

CCAMLR has taken those principles of conservation seriously, and over the years I think they have been quite successful, particularly looking at the impacts on predators, which are consuming the harvested species. They have been quite successful in nearly eliminating the bycatch of seabirds by toothfish vessels, and quite effective at getting rid of illegal fishing as well. All of these things, and taking that broader ecosystem approach, geopolitical difficulties aside, I think they have still been effective.

**Q123 Philip Dunne:** I have one other little question on this—Matt, you can respond as well. Is there anything that the UK could be doing to make CCAMLR more effective?

**Matt Spencer:** I can answer that question. I completely agree with what Susie said. To highlight, though, that in recent years, because amendments are made by consensus, there has been blocking by a small number of parties, which mirrors what is going on in ATCM, about a disruption in the implementation of MPAs. We know there is a 30x30 going on, not least in the Southern ocean. This is at times in contrast to the fishing opportunity that can go ahead. The burden of proof has shifted more on an onus of protection over an ability to fish.

On your second question about what the UK could do to help redress this, it is strengthening the requirements for both conservation and fisheries. Smart objectives have been discussed in recent CCAMLR meetings, ensuring that precautionary measures are continuously taken to meet the objective of CCAMLR, which is inherently precautionary. Also, it is not novel but an area that the UK is leading on—not least through BAS and CEFAS— is taking on climate change with respect not only to area protection, but to all opportunities and activities in the Southern ocean. The UK is leading on that, which is impressive to see.

**Dr Grant:** Certainly, I agree with all of that. One of the other things that makes CCAMLR quite unique is its central focus on science as the basis for its decision making. Although that is challenging at times, it is something that the UK contributes a huge amount to through BAS and CEFAS, and others as well.

We already do the international collaboration and co-operation on that, but it can always be improved. CCAMLR works effectively within the scientific working groups, certainly in that international collaboration, with all members, usually—or most members. Although that becomes more difficult as it goes up the tree towards the commission level of decision making, I think at a scientific level that collaboration is one of



CCAMLR's strengths. We are seeing that with the development of the new krill fishery management strategy. Although it is very slow progress, again it is incrementally getting there through CCAMLR's scientific efforts.

**Q124 Chair:** May I move you forward on to—we have talked briefly about them already—MPAs and CCAMLR's role in them? First, can you give me a quick snapshot of what benefit the MPA around Ross sea and South Orkney Islands has had? What is the benefit of the MPAs in those two places, before we move on to talking about other ones? What are they for?

**Dr Grant:** The South Orkneys area was established first in 2009 and the Ross Sea MPA a few years later in 2016. Both of them are very large areas of the ocean that are set aside and are not fished. The South Orkneys is completely no-take, and a large part of the Ross sea region is also completely closed to fishing, although some small parts of it are open to limited fishing. We know that those are reference areas. We can have them set aside as areas where the impacts of direct human activities of fishing have been minimised. They are good reference areas, particularly to understand future change, because we know that at least we are controlling for one set of activities that is not happening there.

I think having parts of the ecosystem that are off limits to fishing in that way is hugely important for ocean health generally, and representing various different parts of the Southern ocean ecosystem, the Ross sea and the South Orkneys are very different ecologically. It is the beginning, hopefully, of a larger network where a number of different examples of the Southern ocean ecosystem, as a whole, will be protected.

**Q125 Chair:** We will come on to that in one moment. I think that your answer is, therefore, that the MPAs for Ross sea and South Orkney Islands have been effective in protecting species.

**Dr Grant:** Yes, I think so.

**Q126 Chair:** What is the downside of the Weddell sea, east Antarctica and the peninsula not having an MPA? What consequence does that have for the biodiversity in those areas?

**Matt Spencer:** As it stands, first, there is the overarching 30x30 ambition that a lot of Governments are pledging to. MPAs are globally varied in their set-up. As I pointed out, the South Orkneys are very different from the Ross sea, but in principle, they are aiming to protect the ecological processes and ecosystem integrity. Any activity, anthropogenic or otherwise, that happens in an ecosystem has a corresponding effect.

As Susie rightly pointed out, the best way to understand a complex and changing environment is to try to remove each of these stressors. A stimulus response to the ecosystem from fishing might be similar to that of climate change, whereas you can truly identify that by having a no-



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take area, for example. I will leave it there for the time being, unless anyone else wants to jump in on that.

**Dr Hogg:** I briefly add that I agree with Susie's point about the representative nature of marine protected areas—trying to protect examples of different types of ecosystems through the Antarctic. We have that through the South Orkneys and Ross sea, and the additional MPAs add to that tapestry of protecting different types of environment.

From a climate perspective, I think it is important to be protecting different latitudinal gradients within the Antarctic. We may expect, through climate change, the oceans to become warmer and more acidic and species to be contracting more towards the continent. It is important that we have the network of MPAs that protects that connectivity.

Q127 **Chair:** The Ross sea and South Orkney MPAs are less effective because we do not have the Weddell sea and the peninsula; is that right?

**Dr Grant:** I think the system as a whole is less effective. Ultimately, we would like to get to a point of having all of them in place.

Q128 **Chair:** Let us go back to CCAMLR, which operates consensually, of course. If Russia and China are determined to block MPAs, as they seem to be doing at the moment, what can Britain or America do to find a way towards having an MPA for particularly the Weddell sea, but also, interestingly enough, east Antarctica?

**Dr Hogg:** In CCAMLR, you have some nations that are purely interested in conservation, some nations that are more interested in fishing and some nations that have a foot in both camps. As we have covered, it is a consensus organisation. That is trying sometimes, but it is a necessary process to go through.

From a scientific point of view, all we can do as scientists is continue to push our science through those CCAMLR working groups and perhaps make more and more plain the scientific case for, in this instance, the MPAs. That makes it more uncomfortable for other nations. The onus is on them to explain why they do not think that that is a good approach. As scientists, the only tool that we have in our arsenal is to produce the best available science to underpin the arguments that we are putting forward.

**Chair:** Gentle persuasion.

**Dr Grant:** Scientifically, that is very important. It is necessary for members to understand all of the concerns that other members have about these areas. There has been a lot of attempts to get people to articulate exactly what they are uncomfortable about with the designation of MPAs, in particular. We are starting to understand that a little bit better, and maybe there are some avenues open to try to modify proposals or to work on addressing those specific concerns.



One of the things that may help is to try to establish a process where it is clear to everybody that MPAs can be reviewed, modified and updated as time goes on. That may help to alleviate concerns that these things are just vast areas of the ocean that are off limits forever. They may need to change as a response to improved understanding, as a response to something that we learn about the environment that we did not know when they were established—perhaps a changing climate, changing human activities. All of these things may necessitate a review of the protected area system.

It is important that we have a system that everyone has trust in so that it can achieve that. A big part is the science that is needed to monitor and understand those areas going forward.

Q129 **Chair:** Am I right in thinking that there are some MPAs around the world where sustainable fishing is perfectly allowed? MPAs do not necessarily mean no-take zones, or do they?

**Dr Grant:** MPAs cover a big spectrum of different measures. It can be everything from a very strict no-take reserve that is off-limits to everything, through to something that has a multiple-use element, where there might be fishing or other activities allowed under some form of management.

Q130 **Chair:** Presumably, those arguments might be things that would persuade Russia and China that agreeing an MPA in the Weddell sea does not necessarily mean a no-take zone. It might do but it does not—

**Dr Grant:** Yes, and I think even now the proposal is not completely no take. There are areas that would allow for some fishing, as is the case in the Ross sea.

Q131 **Chair:** WWF made an interesting argument, which was that the question of burden of proof seems to be heavier on fishermen than it is on MPAs or vice versa. Tell us what you meant.

**Matt Spencer:** The rule we have is that, for example, with every year that goes past, with every meeting, there is another layer added. MPAs are submitted and proposed every year and quite often are pushed back on, and we do not have the best available data when it is extremely costly to go down there—not including the time to get down there. In many cases it would be constituted as the best available data anyway, so it keeps getting pushed.

Moreover, there is also an extra burden of proof pushed not just with the MPAs, but with their associated research and monitoring plans. The Ross sea MPA was approved in 2016, and a big sticking point in a lot of the discussions by some parties is that the resultant research and monitoring plan has not been determined. When we ask said parties what their views are—this goes back to the fact that we need more collaboration and more



communication—they are not forthcoming. It becomes a situation where the dog is chasing the tail at times.

**Q132 Dr Matthew Offord:** We have heard in evidence about the consensus-based decision making in the Antarctic treaty system. How does that work?

**Dr Grant:** It can be very slow and that can be frustrating at times, but when it does achieve success, the fact that it has been quite slow is often a strength that you have brought everyone along with you. Somebody in the previous session mentioned the idea of corridor diplomacy, which suffered during the pandemic. It takes a long time of building trust and working out details—often over a fairly lengthy period.

It is challenging, and it is particularly challenging when it is only one or sometimes two or a few members who are not agreeing, but the system is what we have. It has got to a point of success in the past where those difficulties are worked through, and eventually, it comes to a fairly strong conclusion.

**Q133 Dr Matthew Offord:** Mr Spencer, you raised the issue of emperor penguins. We understand that there was a proposal to have them designated as a specially protected species but that has not been agreed, even though there is a robust scientific case for that. I do not understand why that has not happened, but should it not just be a majority proposal for decision making so that one country cannot simply say no for whatever reason and the proposal does not go forward?

**Matt Spencer:** If it helps, I also agree. I do not understand why they have not been listed. A number of nations are voluntarily implementing the measures proposed, but it goes back to—I cannot put myself in the mindset of the one individual party that is refusing to block.

**Q134 Dr Matthew Offord:** Who is that?

**Matt Spencer:** It is China—if pressed for it. WWF, in COP27, organised an event to push this forward. A lot of members are already voluntarily implementing it, so there is a pathway ahead, but again it sticks to consensus. It is always better to have parties signing up, owning an issue and trying to work out ways to rectify, or at least mitigate, it.

**Q135 Dr Matthew Offord:** I accept that point of view, but often consensus produces the lowest common denominator. With the case of the penguins, for example, I cannot see why anyone would simply wish to vote against that.

**Matt Spencer:** They are on a slippery slope to extinction is the catchphrase we use in the office sometimes. I cannot stress enough the need to engage with parties that see otherwise. If it is political with science, then politics will have to try to support, because the science is suggesting—



Q136 **Chair:** Did I hear you correctly, that you are thinking the emperor penguin may be en route to extinction?

**Matt Spencer:** There are severely depleted populations. There is colony collapse in response to what we think is best evidence to climate change. There are species that depend on the sea ice, and when you have record low sea ices—in both winter and summer—these are some of the early indicators that something is going wrong.

Q137 **Dr Matthew Offord:** Taking into account the ability of one country or organisation to block any proposal, how do the British Government support conservation proposals, or how do we even promote them within the current decision-making process?

**Matt Spencer:** How do we support a better way of finding consensus? It is about earlier, more and better political liaison with parties that are opposite to you. That is outside of the Southern ocean; that is what I push to do in life. Also, the UK has incredible scientific rigour, and we are very well regarded globally because of it. That is a real soft power that we could use.

Also, it would be good to get the political insights. If, for example, China is a party that is blocking a certain proposal that the UK is different to, better understanding—getting a geopolitical or a Chinese policy expert to brief before departure, before the ATCM or before CCAMLR—is something that the UK could try to do to then bring it to the fore.

**Dr Grant:** This goes back to the point that I made about marine protected areas and the importance of understanding everybody's point of view. To return for a minute to emperor penguins, while the vast majority of parties were completely convinced that this protection had to be implemented, there are still some outstanding uncertainties about, particularly, the projections of sea ice into the future. We need to make sure that those are well understood. If parties still have a concern about that and it not a completely clear picture, we need to try to address that and to invest more time in collaboration to understand it better, to improve our modelling, and to have longer-term monitoring.

Also, it is about making sure that we have the interdisciplinary science, where we are looking at the emperor penguin population at the same time as what is going to happen to sea ice and the projections for climate change into the future. These are very complex things.

If there are outstanding difficulties based on that uncertainty, which is preventing consensus, we have to try as hard as possible to understand those and address them. Collaboration is the way forward on that in science and in the way that we discuss conservation measures.

**Dr Hogg:** I completely agree with what Susie just said. The only thing I will add—perhaps I am naive, given that I have only recently started dabbling in the CCAMLR world—is giving ownership of certain proposals to



the countries that traditionally have resisted. So rather than coming with a fully formed proposal on the table, it is about engaging at a very early stage and, as you say, understanding the different viewpoint to try to reach a consensus early on.

**Q138 Dr Matthew Offord:** It is interesting you mentioned the word “dabbling” in the CCAMLR process. How is that experience? How do you contribute and how do—shall I call them independent researchers such as WWF—contribute to the CCAMLR process?

**Dr Hogg:** My contribution to the CCAMLR process is very much through the scientific working groups—bringing scientific papers and reports through that. Sorry, I do not know whether it was Matt or Susie who mentioned it earlier, but the contribution that the UK has made to CCAMLR through that process is extraordinary.

I asked a colleague from CEFAS in preparation for this meeting, “Can you just give me a summary of what our contribution has been?” She went back to 2000, and sent me a list of 500 UK-led papers and reports that have gone through the CCAMLR working groups over that time, with such a diverse range of subjects, including sustainable fisheries, pollution, microplastics and climate change. A lot of that work happens through the British Antarctic Survey, through the long-term monitoring series of some of the predator populations on the Antarctic peninsula. We as a country contribute a massive amount of research.

**Dr Matthew Offord:** Resource is not a problem.

**Dr Hogg:** I think the security of funding to ensure long-term monitoring is absolutely fundamental. There have been good contributions through programmes like the Blue Belt and through initiatives like Darwin Plus, which provides research grants but, in fairness, they are relatively short term when we are talking about the challenges that we are looking at. Darwin Plus, for example, is a couple of years normally and Blue Belt has been very well received, with three years’ worth of funding. It is about ensuring that those long-term data series continue to be collected.

There are our studies looking at the high-predator populations at South Georgia and on the peninsula, and looking at the work that we were doing around krill and understanding that as an important aspect of the ecosystem. BAS, through the Darwin initiative, has been leading on research looking at krill populations in winter, which has never happened before but that is when they are being fished. That is an important time to collect the data. That perhaps should not be dependent on short-term Darwin Plus funding. Maybe there should be longer-term funding in place to do that work.

**Q139 Dr Matthew Offord:** Mr Spencer, from your perspective?

**Matt Spencer:** As an NGO, we help provide advice from the environment side of things on a number of delegations. I sit as part of the UK team.



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Other NGOs sit in other delegations and help provide the expertise where His Majesty's Government seeks, and other parties elsewhere. We also help submit detailed policy papers or background papers to a lot of these meetings. They help either inform or direct the conversations around certain agenda topics. As well as that, the World Wildlife Fund—I am not suggesting we plug any funding gaps here—helps fund science. That is something that we help take to the fore. Lastly, as part of civil society, we try to act as a representative of the people to try to influence Governments towards conservation goals and benefits for people and the planet. That is our side of things.

**Dr Grant:** Perhaps I could add a third perspective on that, which is from the Scientific Committee on Antarctic Research, the international organisation that is co-ordinating Antarctic science. While BAS scientists are contributing huge amounts through the UK into CCAMLR, there are also scientists in BAS and wider UK institutions who are contributing through SCAR as well. SCAR, as an observer to CCAMLR, is able to provide advice on any Southern ocean science.

The two things they are doing particularly strongly at the moment is on krill biology. They have a very strong group that is looking at the biology, ecology and distribution of krill, as well as climate change, which is an area where CCAMLR, as a scientific group, does not necessarily have that direct expertise from the physical climate scientists. SCAR is able to collate a lot of information from an international group of scientists and then contribute that advice to help CCAMLR in the context of the decisions it is having to make. I think that is another strength.

Certainly, a lot of UK scientists are contributing through that route as well. Again, I think that highlights the importance of international and often, as Ollie says, much longer-term scientific research needs that are critical to support.

**Chair:** Thank you all very much for your written and oral evidence. If you think of things that you wish you had said but forgot to say, please let us know. As I say—perhaps you heard—we will be producing our report some time before the summer. We hope it will be viewed as being a weighty, well-researched and intelligent document, albeit maybe not coming to conclusions you are seeking. None the less, I hope it will be widely respected, and I think your evidence will play an important part in that. Thank you very much.