



Environmental Audit Committee

Oral evidence: [Marine Protected Areas](#), HC 914

Wednesday 5 February 2014

Ordered by the House of Commons to be published on 5 February 2014.

Written evidence from witnesses:

[Wildlife and Countryside Link](#)

[Marine Conservation Society](#)

[Marine Biological Association](#)

[Watch the meeting](#)

Members present: Joan Walley (Chair), Peter Aldous, Neil Carmichael, Katy Clark, Zac Goldsmith, Mark Lazarowicz, Caroline Lucas, Caroline Nokes, Dr Matthew Offord, Mrs Caroline Spelman, Dr Alan Whitehead, Simon Wright.

Questions 1-73

Witnesses: **Joan Edwards**, Head of Living Seas, Wildlife Trusts & Chair, Wildlife and Countryside Link's Marine Working Group, **Tom Hooper**, Head of Marine Policy, Royal Society for the Protection of Birds, and **Melissa Moore**, Senior Policy Officer, Marine Conservation Society, gave evidence.

Q1 Chair: I would like to begin this inquiry on Marine Protected Areas, which we start off this afternoon, by giving each of you a very warm welcome. Thank you for coming along and sharing your expertise with us and helping to set the scene for us in what I hope will be a constructive inquiry.

It is over a year since Link gave evidence to the Science and Technology Committee and supported calls for an ecologically coherent network of Marine Protected Areas. Do you think that that coherent vision is any closer today? Where do you think we are with progress that has been made?

Joan Edwards: We are always very disappointed by any form of delay, but we were very pleased with the Government's announcement of 27 Marine Conservation Zones in November last year. That is a good start, but we have a long journey to achieve ecological

coherence. Also it is worth saying that in Scotland we now have 33 proposed Marine Protected Areas, which are under consultation at the moment, and at last we do have a Northern Ireland Marine Act, which means they have the legislation to designate national sites, and in Wales they are making a lot of progress on the management of SACs—special areas of conservation under the Habitats Directive. Yes, we have a long way to go, but we are making progress. We just have to make sure that the Government continues, across the UK, to work towards achieving ecological coherence.

Q2 Chair: Are you all in agreement with that, or is there anything you wish to add to that?

Tom Hooper: No, that is agreed.

Melissa Moore: Yes, agreed. There is still quite a long way to go.

Q3 Chair: In terms of the original idea of 127 recommended sites and where we are now, does their lack represent a failure or do you feel that there is a new vision that is equally as good? What is your view on the whole process of defined areas?

Tom Hooper: We see it as work in progress. All of these are contributing to the ultimate goal of an ecologically coherent network, and the fact that there are two more tranches due means that there is the ultimate vision of this goal, but I think there are challenges—for example, the evidence base in terms of the very high evidence expectations—that are making this goal particularly difficult to meet.

Melissa Moore: We are concerned about the level of ambition with regard to the 127 and the fact that they seem overly concerned about short-term costs, rather than looking at long-term environmental gains but also the long-term economic benefits. If they did look at those economic benefits, we think there would be further support from the Treasury as well. For example, the south of Falmouth zone was dropped because there was concern about local fishing boats or fleets, but it was only generating £1,000 per year, so those economic concerns are weighted rather heavily against MCZs when we should be looking at those economic benefits.

Q4 Chair: Do you think that there is a failure right across Government to look at definitions of what is economic growth, as opposed to sustainable development, and to build in the environmental benefits as well as the costs? Do you feel that there is more that Government could be doing, for example by its interpretation of the Green Book at Treasury level, to help to shape how you would start to measure and define the advantages that would arise?

Joan Edwards: That was one of the problems we found with the impact assessments that were produced in the first tranche. There was a lot of talk about what it would cost to industry but there was very little about the benefits of Marine Conservation Zones. Perhaps more importantly, it is what the benefit of a network would be, because a network is national sites such as Marine Conservation Zones, but it also includes European sites, which are Special Areas of Conservation and Special Protection Areas. When you add them all together, they perform an extremely important function in ensuring that we have a very healthy marine environment, and it also ensures that we can have goods and services from that environment as well.

Q5 Chair: Who do you think should be taking the lead on that?

Joan Edwards: I think you mentioned the Green Book. We really ought to visit the Green Book and think about looking at the benefits to the environment and the value in the environment, and not just think about the cost to industry. At the end of the day, if you are going to work in the marine environment, you need a healthy marine environment, and at the moment we have a marine environment that is degrading.

Melissa Moore: There were numerous studies undertaken already that we referenced in our written evidence, where the benefits are over £1 billion of the full network, and also the National Ecosystem Assessment. They found marine biodiversity was at £1.7 billion. There are numerous economic benefits that have already been proven. I think DEFRA are having difficulties in finding the budgets themselves to undertake further assessment, but certainly we think it is an area that should be prioritised.

Q6 Chair: There should be the emphasis on the appraisal as well as looking at ways in which you count environmental benefits as part of economic cost. If you were to go down that road on this work in progress of where we are on the journey to long-term designation, given that we only have 27 to start off with, if we were in an ideal world which other areas would you say should be added to the 27 on the list as a matter of urgency and priority? Why would you choose the ones that you are about to choose?

Tom Hooper: You can start by looking at where the largest gaps are. When you look at the MPAs that surround the UK shores, there are some very obvious gaps around the south-west and northern North Sea, for example. In terms of ecological coherence, we want to ensure that in the first instance there is a fair representation of the different habitats around the UK, so that would be where I would start, looking at very basic building blocks.

Melissa Moore: The next two tranches really need to use methodology that ensures that the scientific criteria for ecological coherence is delivered, and not prioritise socio-economic costs. We have been a bit concerned with the first tranche cherry-picking those sites that have the least cost. We think decisions need to be made more on the science.

Joan Edwards: We have a number of Marine Protected Areas in all four countries and we have the opportunity to designate new sites. What we must make sure of is that the devolved countries all talk to each other and talk about how we can achieve ecological coherence across the UK. We must not look at England separate from Scotland. We need to look at the whole marine environment surrounding the UK.

Chair: I am going to bring in Zac Goldsmith precisely on that point.

Q7 Zac Goldsmith: The next phase in Marine Conservation Zones, the next consultation stage, is due to start in about a year's time. I am going to pre-empt your answers to this. I suspect you will be saying that that is not soon enough. What do you think could be done to bring that process forward?

Joan Edwards: The designation of sites is a very complicated process. What we really welcome is that we have been told now that when DEFRA publish the consultation at the end of the year they are likely to identify what management might be required in those sites, and I think that is a very positive step forward. One of the biggest problems with the

previous consultation is people were told, “You might get an MCZ, but we do not know how we are going to manage it”. As an individual, if you are a stakeholder involved in that site, you do not know if your activity is going to be stopped or changed or adapted, and I think the transparency in tranche 2 is very welcome because it means that stakeholders will have a better understanding of what might happen in the future.

Q8 Zac Goldsmith: Can I ask you to go back a step? How will the second consultation differ from the first? It will presumably have a list of potential sites.

Joan Edwards: We understand that tranche 2 will have a list of sites that are there for consultation, but we also understand some of the management that might be required will be identified, so the individual stakeholders will have better clarity on how it might affect their daily lives. That is complicated and it will take time, but as NGOs, we would rather there was that transparency so that stakeholders can have a better understanding of the process and feel engaged and part of it. At the end of the day, when it comes to managing Marine Conservation Zones, we need fishermen and other industry to be part of the process, because they are the eyes and the ears at sea. We cannot have lots and lots of boats out there, looking to see who is doing what.

Q9 Zac Goldsmith: How many potential sites do you expect the second tranche, the second consultation, to include?

Joan Edwards: That is something that DEFRA would be able to tell you, but the Minister did say at a meeting with another NGO last week that it would be about the same amount, same number, so around 30. There were 31 consulted in tranche 1 and he suggested the same sort of amount would be consulted on in tranche 2.

Q10 Zac Goldsmith: Would you expect a third consultation a year after that to be roughly the same scale as well?

Joan Edwards: We would like to see more ambition because to meet ecological coherence, we probably need to do more than just another 30.

Q11 Zac Goldsmith: If I can paraphrase, the issue that you have with the next consultation is not the timing, it is the scale.

Joan Edwards: Yes.

Q12 Zac Goldsmith: You would like it to be bigger than the first consultation. In your view, should these three consultations—the one we have already had, the one coming up and the one afterwards—be it? Is it the ambition that at the end of those three processes we will have our ecologically coherent network? Is that the Government’s position and is that also your expectation?

Joan Edwards: We are on a very long journey, and I would be very surprised if we meet ecological coherence in the next two years. What we will find is by looking at Marine Protected Areas around the UK we may identify where we have gaps. For example, the obvious gap at the moment is that we do not have very many sites for mobile species and I hope that we will get sites in tranche 2 and tranche 3. If we do not, then we would call for extra sites after tranche 3.

Tom Hooper: The term “ecological coherence” is one that is often a barrier to this in terms of how we define whether we are ecologically coherent. The way I would want to explain it is in terms of certainty, so it is a continuum that we are more certain that we are ecologically coherent. There is not a buzzer that goes off when you are ecologically coherent. Right now we are very certain that we are not ecologically coherent. There is a process of designating sites and then testing, designating and testing, until we are at a final stage of ecological coherence.

Melissa Moore: The international principles that need to be met are things like representivity and connectivity and adequacy, and it was our understanding under previous Government guidance and scientific advice that we would need a lot more than what is proposed at the moment, so nearer the 127. Unless there is new guidance from the Government, we are at the moment still unsure what it will be that is needed to deliver that.

Q13 Katy Clark: You are talking about a very long journey. As you know, there were many that campaigned for many years to get the legislation, and there is a huge amount of frustration about the length of time that this has all taken. We have had legislation in place for quite a number of years now and the politicians that voted for that legislation thought that we would have a network in place by now. In Scotland, there is an awful lot of emphasis on specific species rather than an ecosystem-based approach that recognises the interconnectivity of different species. You are talking about an ecologically coherent approach. Do you not think that this is something that could go on and on for decades if you are trying to make it an exact science, and there comes a point where we simply have to bite the bullet and say it is essential that large parts of our marine areas are designated and get protection? There is a massive amount of frustration from those who have been campaigning for decades for these areas and zones.

Joan Edwards: As somebody who has campaigned for decades and was involved in the beginning of the Marine Bill, as was Alan, yes, I feel slightly frustrated that this journey is taking a long time, but we have to get it right. What is really important is that we take the stakeholders along with us. We must not just throw an MPA network on top of the sea and say, “That is it, all activity is stopped”. It has been a long process. I think we have done a very good job of explaining why we need Marine Protected Areas. In terms of the network projects in England, they really did involve stakeholders and a lot of people were very involved.

I too would like to finish the journey but, to be honest, we have a long way to go and it is really important that we get cross-party support to ensure that we continue with this journey and get to some point where we say, “We are just about there”, and that is what we are aiming for. It is not about precise science, and we have to be quite careful about ecological coherence. There will be a point where we will think, “Yes, this is it, and are we managing them all right? Yes. Are we seeing recovery? Yes”. That is the point where we can be very proud.

Q14 Zac Goldsmith: Just before I ask my last question, do you think, given the complexity that you have already described in your previous answer to me, it is realistic to imagine increasing this second tranche from the 27 or whatever it is likely to be, to a significantly bigger figure? Is that realistically possible, given the difficulties involved?

Joan Edwards: I do not think it is realistic with the capacity and the funding that is available at the moment. It was very good news that the Minister was able to give money to the regulators, so the IFCA's have been given extra money to help regulation of the first tranche of MCZs. If we were going to significantly increase the number of sites to be consulted on at the end of the year, then the funding to Natural England and JNCC would have to be significantly increased.

Melissa Moore: Also to DEFRA themselves. They are suffering from literally having a couple of staff who are having to pull together these impact assessments, so they are finding it challenging, which is partly why these tranches seem to be so small.

Q15 Zac Goldsmith: The last question is, to what extent does the need to work with the devolved Administrations make this job harder? Does it make it harder?

Joan Edwards: It is important that the UK Government starts a process of discussion with the devolved countries, because at the moment—

Chair: When you say “start”, do you mean it is not happening at the moment?

Joan Edwards: I am not aware of them talking about ecological coherence. It is important, because at the moment each country has a different process in terms of its designation of Marine Protected Areas. In fact, in every country they seem to have a different name for their national sites. It has been quite important that they have had separate designation processes, because they do have different stakeholders and so on, but, if the UK is going to head towards ecological coherence, we need some sort of debate or discussion between the countries about who has done what and what is still required and where the gaps are.

Q16 Zac Goldsmith: That is interesting. Would you all agree with that assessment that there has not been enough discussion between the various component parts?

Melissa Moore: JNCC are undertaking a study at the moment that they are soon to complete. I do not know politically how much discussion there has been, but scientifically, they are beginning to try to determine how far we are down the route to achieving an ECN. We are a bit nervous about some of their criteria, where they have used all the ecological coherence principles, but on the science side they are beginning to look at it.

Q17 Zac Goldsmith: It seems unimaginable that you could set out to create a coherent network if, at the same time, you are treating each part of that network in isolation, which is what you are implying in your answer to me. Maybe it is a question we need to put to DEFRA, but this is the first time I have heard that point made by anyone campaigning around this issue, that there is an amazing—

Tom Hooper: Broadly, JNCC have that overview, but I think it is challenging for them to connect the four different countries, which are running slightly different timelines and using slightly different criteria. There is that oversight but it is a real challenge to make sure it is properly joined up.

Q18 Chair: Can I just add to that? Zac Goldsmith referred to devolved Administrations, but I am thinking also about the Isle of Man and the Crown dependencies. How do the aspirations and the vision that they might have come into it?

Tom Hooper: I would see the Isle of Man, which is developing some very progressive spatial managements, particularly to manage the scallop industry that it has, as a three-kilometre devolved spatial gap within the Irish Sea. Again, it is challenging to make sure it does all fit together, but I see it as—

Chair: You cannot really have a gap in the middle of the sea.

Tom Hooper: We know that the Isle of Man and those sites exist, so it is then beholden on those who are planning outside that area to make sure that the puzzle fits together. It is a complex objective, but it is a question of planning with the knowledge of what exists in the present time. Knowing that the Isle of Man has done that means that the Irish Sea proposals can bear that in mind.

Joan Edwards: We have recently been talking to the State of Alderney about establishing a marine park around Alderney. Alderney has a problem in that it does not have a lot of evidence about its marine environment, but it does want to make sure it is protected and managed sustainably. They are looking at, rather than a large Marine Protected Area, a marine park where all activities will be managed to ensure it is sustainably developed.

Q19 Peter Aldous: I think all three of your organisations have criticised the initial consultation process for the Marine Conservation Zones. Would you be able to outline what you see as the main flaws in that process?

Melissa Moore: From our perspective, it was probably, as I mentioned earlier, focusing on the costs of the MCZs rather than determining and establishing what the benefits were. As I said though, there are a number of studies now showing that there was over £1 billion worth of benefits of the MCZs and one study, just looking on the recreation side, for example, of angling and diving estimated that the network would deliver something like £1.7 billion. For us, it is showing the benefits of the ecosystem services and also those direct financial benefits to businesses.

Tom Hooper: I would want to home in on data. That data certainty has been a real trip-up for this process. At the moment, the expectation of the certainty is very high, but in fact, correspondingly, the investment in data production is quite low, so we are left with a data gap. Either we need to revisit the benchmark around which data are being expected, the level of certainty, or we increase the investment in our data collection. It is a serious problem, and in my view we should be much more proportionate about what we know about a site. For example, inshore, you would be expected to know an awful lot more for a site that was very close, a seagrass bed that was just off a beach, but further offshore, in 200 metres of water, of course we know a lot less. I would like to see a much more proportionate expectation of what level of data we should know before a site can be designated.

Q20 Peter Aldous: Taking it a bit further, were the three of you satisfied with the range of consultees and stakeholders? Was that adequate in your minds?

Melissa Moore: Over 40,000 people responded to the consultation, which shows the level of public support as part of the campaign, but it does show that people are prepared. It was extraordinary for that many to engage in a DEFRA consultation. There was wide-ranging consultation. Particularly with the MCZ stakeholder process, they spent £8 million in ensuring that they engaged as many local stakeholders as they possibly could.

Tom Hooper: It was a very different way of doing things and a very forward-looking way of making decisions in the fact that it was iterative, so stakeholders were around the table, looking at meeting the guidance they were set and challenging and looking to agree with each other, rather considering an idea that was put before them and responding to that. It was a very collaborative discussion that enabled them to iron out those differences that they might have.

Q21 Dr Offord: I just want to follow up on Ms Moore's answer to that. I asked that question of the Minister: what were the benefits of Marine Conservation Zones, and why have they not taken the benefits into account in the consultation? The response by the Minister was that the benefits are harder to quantify as there are scientific uncertainties in ecosystem service changes in the marine environment and very little data that allow evaluation of these changes. Do you have any empirical evidence that you can back up that there will be benefits through other issues, recreational activities?

Joan Edwards: When DEFRA was carrying out the impact assessments, we did some work with Plymouth University. We took individual Marine Conservation Zones that were in the first consultation, and we looked at the socio-economic benefits and provided that data to the economists within DEFRA. We were told that they could not use it because that was not in the rules that they use to guide impact assessments.

Q22 Chair: Do they say which rules?

Joan Edwards: I think they referred to the Green Book. The difficulty we had was when we first spoke to the DEFRA economists, the first report we gave them was on the economic benefit of a network, and we were told, "No, that is not appropriate because it is a network. You have to have economic benefits of individual MCZs". We carried out some work. We only looked at four MCZs, but we tried to choose four that were very different to try to show the different sorts of benefits that you could gain from designating these sites. Rather than just writing an academic report, we involved local stakeholders, so we involved local fishermen, local divers, people who own boats, the local authorities, and we looked at different areas. One area was Torbay, and we looked at what benefits we have now and what benefits we might have in five years' time if it was managed in the right way. We published that information in a report that is available on the Wildlife Trust's website, but we can send that to you.

Chair: It would be very helpful to have that on the record.

Joan Edwards: We presented that to DEFRA, and in fact we encouraged DEFRA economists to come to Plymouth to meet the scientists who produced the report. So we did as much as we could to try to influence the process, but we were basically told that that information could not be taken into account.

Melissa Moore: Likewise, with other studies that have been undertaken, they are quite sceptical of some of the methodologies used, whether it is willingness to pay or other environmental economic methodologies, and so again those have not been taken into account. In our written evidence we detailed four different studies that show that the benefits of MCZs are quite substantial, and those have not been taken into account.

Q23 Peter Aldous: Just rounding things up, how would you like to see these flaws corrected? What lessons have been learnt that we can take forward into the consultation for the next tranches?

Tom Hooper: If we could define management a little bit more clearly up front, that gives the stakeholders a better idea of whether they can support a site or not. It was very disappointing to see, for example, a lot of the recreational sectors who were very lukewarm about these sites because they were not sure what it would mean for them; for example yachting, whether they could anchor in a site, or whether an angler could go and cast a line in the site. If you have that certainty up front, then hopefully we would get more support from those sectors.

Joan Edwards: Also, it would be helpful if DEFRA made the consultation more open to the public. If you looked at the consultation document at the beginning of the year, it was very technical. I found it quite hard to read and I am a marine biologist. That is not really going to help engage the public, and the public do want Marine Protected Areas. When you go and interview them, they are surprised that we do not have lots. Then you want them to engage in the consultation, and there are a lot of lessons learnt about interpreting what Marine Protected Areas should look like, what they contain, and getting the message across that we have a marine environment that is very special, that it needs protecting and it is something we all should be proud of.

Q24 Caroline Lucas: I think Link said when the first proposed MCZs were assessed that the Government did not adequately reflect the value of so-called ecosystem services. Could you say a little bit more about how the Government could improve things for the next tranche?

Tom Hooper: It is a reality that the science around ecosystem services is not well developed and there is a lot of uncertainty. As Mel was saying, the use of techniques such as willingness to pay, and the huge areas of the cultural services, the inherent services, are very difficult to define with a lot of certainty. I would certainly want to be up front about that uncertainty but at the same time not necessarily just cast such information aside because of that uncertainty. We know, for example, the values of the fishing industry or values to recreation—those figures are pretty much written in black ink—but it is not fair to say that just because we are not sure about how important a healthy marine environment is to climate change and to the health of our wider marine ecosystems, that should not be taken into account.

Melissa Moore: I think they should certainly reference the various studies that have been undertaken already, and also hopefully undertake some more themselves, and reference the national ecosystem assessment studies and the various other ones as well. An economist said at Coastal Futures, a conference just the other week, that the MCZ network is the conservation bargain of the century, and it really is compared to some terrestrial-

type conservation. This whole network will bring enormous financial benefit as well as environmental benefit.

Q25 Zac Goldsmith: Sorry to butt in. On the cost-benefit analysis in the first consultation, you have already said that they captured the cost to industry and they did not look at the—were any benefits quantified, or was it all about costs?

Joan Edwards: There was very little.

Q26 Zac Goldsmith: What would have been included as a benefit?

Joan Edwards: I am not sure there was any at all.

Q27 Zac Goldsmith: Your answer is, nothing at all?

Joan Edwards: No.

Q28 Caroline Lucas: Do you think that is because they do not have the tools to do it or because they were blind-sided and just decided not to do it?

Joan Edwards: I do not think they had the tools, and maybe they did not have the time, but they did not take the opportunity to go to people who perhaps have done work in that area. For example, to cite Plymouth University again, they have a huge team that are looking at the culture, benefits, and socio-economics of Marine Protected Areas. That is being funded by an Interreg fund. They could have learnt a lot from that work, but they just did not seem to have the time or show the need to want to integrate with some of the other people who have been thinking about this area of work.

Melissa Moore: They did have to provide some detail of the benefits on the qualitative side of things, so they did say that MCZs are a good thing for the environment, but not that quantitative detail because they had not undertaken studies.

Q29 Katy Clark: We have already paid a huge cost for the degradation of our marine environment. I represent a part of the world where traditionally there would have been hundreds of fishing trawlers. The whole of Ayrshire would have had many people who were directly reliant on fishing. I now have six fishing trawlers that work out of my constituency, and they are predominantly lobster and prawns. Is that looked at in any way? That is a cost we have already paid.

In my constituency we have a no-take zone that came about as a result of a huge amount of campaigning on behalf of communities. That was strongly resisted by many, I have to say. There is a no-take zone in Lamlash Bay. It may not have met all these criteria that are being set down, because there was very little there because it had been destroyed over such a long period of time, but it has been a no-take zone for a number of years now and there is a significant amount of regeneration of marine ecosystem. How do you quantify all of that?

Joan Edwards: One of the difficulties we had when talking to the DEFRA economists was this whole issue of recovery. We basically said to them that much of the sea is degraded; if you make it a Marine Protected Area and you manage it correctly, it should start to recover. They argued that it is not degraded. They argued that it is fine—this is one of the arguments we had—and, therefore, even if you manage it properly, it will not change. We

tried to say to them that all the evidence shows we have a degraded marine environment. That is why we want a network of Marine Protected Areas, as well as other measures, and, therefore, you will start to see recovery, and recovery is a positive thing, and the cost-benefit is that recovery. We were told that they would not take that into account.

Q30 Chair: That begs the question where the measurements should come from in the first instance, but back to Caroline.

Q31 Caroline Lucas: Do you think that the work being monitored and overseen by Dieter Helm's Natural Capital Committee might be able to provide some of the tools, at least in the future? I do not know if you have been following that particularly closely.

Tom Hooper: There is a lot of work going on at the moment through the NEA and the Natural Capital Committee and the Interreg Project Velma, which is only helping to improve our level of knowledge. I fear that this data are too far off for us to use productively within the current process, so my plea is more around accepting uncertainty and accepting that this is a factor rather than, just because we cannot match the costs, to ignore the benefits. I think that would be the wrong thing to do.

Joan Edwards: One of our concerns on the Natural Capital Committee is it is very land-biased, and the structure of the committee has a lot of land experts. I am not suggesting that they need a marine expert but maybe there should be a marine subgroup. With the national ecosystem assessment, they have a chapter that just looks at marine and involves marine experts. Maybe Dieter Helm's committee should have that same subgroup.

Q32 Chair: Could I just ask, in view of the clauses 61 to 64 in the Deregulation Bill, which we debated earlier on this week—

Neil Carmichael: What a splendid Bill.

Chair: “What a splendid Bill”, says my colleague. Can I just ask, given the duty that there will now be for economic growth on Natural England, how does that square with what you are really proposing, which is about having sustainable development incorporated into that?

Tom Hooper: From my point of view, I think the regulation of these sites is important. To rely on voluntary measures, for example, would be not a sensible way to go. We are looking at having proper enforcement and proper regulation. Equally, it is important that those things are properly resourced. In terms of the regulation, I would advise following that course, rather than voluntary measures only.

Q33 Chair: I was meaning that the consultees, the different agencies, have a duty to promote growth without an equal duty to promote environmental and sustainable development as part of that balance.

Joan Edwards: My understanding is that when Natural England was set up through the NERC Bill, there was a duty already in there to consider socio-economics, and that is why, when we started the Marine Conservation Zone process, the network projects were established to involve stakeholders. All the way through Natural England's history, they have had to take socio-economics into account. That has been there all the way along, and

I do not think that is a bad thing because it has meant that stakeholders have been part of the process. In fact, as a conservationist, I might say some of those Marine Conservation Zones are not quite in the right place for conservation but they are in the right place for all the stakeholders. That was the whole point of the network projects, that we ended up with Marine Conservation Zones in places where it should not cause a lot of harm in terms of socio-economic impacts on other industries.

Melissa Moore: Economics has already been taken into account in selecting the sites, but also we do believe that the MCZs in the long term, very much the long term, will lead to growth for the fishing industry in replenishing resources.

Q34 Caroline Lucas: I am just coming back to the requirement for how much evidence you need before an MCZ can be designated, and you seem to be saying—you have said several times—that we need a more proportionate approach rather than thinking we need to have every last bit of evidence before we can act; in a sense, acting more on the precautionary principle. I just wondered, playing devil's advocate a bit, whether or not you think that opens the process up to the perils of judicial review, if the less strong evidence base was sought. If someone were to put that to you, not myself, what would you say?

Joan Edwards: We have that thrown at us on numerous occasions, that certain industries will look at judicial review. My understanding is judicial review is all about process, so if the process is flawed you can carry out your judicial review. The whole process with the Marine Conservation Zones has been very transparent. DEFRA said in 2010 that everything should be based on best available information, and that is a very practical approach to the marine environment because you cannot have exact science in the marine environment. It is very difficult to survey in the marine environment. It is very expensive. If we were going down the line of having a very scientific, robust process, we would be doing this for an awful long time, a lot more than we are now. It is about getting the balance right, and I think that is why it has been very important to involve stakeholders all the way through the process so that they are part of the process.

Q35 Dr Whitehead: Can we go then to the question of the management of existing MCZs? We have talked about that to some extent. What work have you done to look at the likely financial and human resource implications of the level of management that you are talking about for existing MCZs?

Joan Edwards: We have been working on a different system. We have been part of a steering group that DEFRA set up about a year and a half ago. We have been working on the European Marine Sites Fishing Steering Group, and we have been looking at fishing activities in European sites and trying to work out, in a pragmatic way but backed up by science, which activities are not compatible with the nature conservation importance of the European Marine Sites. That process is what we would probably hope DEFRA would continue in the Marine Conservation Zone process.

What is important about that steering group is it is chaired by DEFRA, it does involve the statutory nature conservation bodies, it involves a couple of us from the NGO sector, but it also involves representatives of the fishing industry. The power of that group is that we have all been there as part of the decision-making process, so that we have been able to go back to our own communities to explain to them how we have come to certain decisions.

We have done it very carefully, because what we do not want is to put people out of work but we do have to stop the most damaging activities. That possibly does not answer your question, because we, as an NGO, do not have the information or the expertise to know how much things cost. I suppose what I am trying to say is we have been trying to follow a very pragmatic, transparent process to make sure that the right decisions are made in European sites, and would hope to do the same in Marine Conservation Zones.

Melissa Moore: For most industries, they will consider the MCZ management as part of their normal environmental impact assessments, so there should not be significant cost implications in undertaking that level of management additional to other parts of the EIA. For fishing, as Joan said, we think a very cost-effective way is undertaking these byelaws. In the Devon IFCA area, for example, vessels are now being required to have vessel monitoring systems, VMS, and that means that once they are prohibited from going in certain areas, prohibited from going in Marine Protected Areas, then the local IFCA can get a text message telling them if a vessel has gone into that Marine Protected Area illegally. Management is much improved and it is really quite cost-effective and quite cheap for vessels to have this system.

We are extremely concerned, though, that DEFRA, the MMO and IFCAs are currently considering voluntary measures for fishing, and voluntary has been proven again and again not to work. It does not provide a level playing field. You only need one trawler to come in and ruin all the work of numerous fishermen. We are opposed to the voluntary approach, and we know wider industry is as well, because it is unfair if fishing is once again treated in a different way from other industries.

Q36 Mrs Spelman: Can I just come in on that? I have been in one of those fishing boats with the black box inside that links to the MMO that warns the fishermen whether or not they are entering into a protected area. There is an important dimension. Do you not think that the fishermen are highly motivated to avoid the conservation area, because part of the contract they have with the supermarkets is to satisfy the supermarkets that they are sustainably fishing? For them, in addition to the voluntary code, there is that commercial imperative that they would not want to lose their livelihood by being shown to be infringing a code that the supermarkets, among others, have agreed we should all be following to protect our marine environment. Is that not another factor?

Melissa Moore: Yes, absolutely, and we take that into account in our ratings on Fishonline, which gives the sustainability of fish.

Joan Edwards: It is worth saying that the boat that you were probably on was a boat that would work beyond six miles, and what we need is the same sort of approach inshore.

Mrs Spelman: No, this was inshore. This was Lyme Bay.

Q37 Dr Whitehead: Bearing in mind what you have said previously about the degraded state of a lot of marine ecosystems, presumably the question of the financial and human resource implications of managing an MCZ would quite often turn on that. In terms of what you are thinking about, are there financial and human resource implications now? What is the quantification of that difference? I assume, if it is thought that the task of management is to have a benign overview of how things are, as opposed to looking at what, bottoming out,

the state of degradation is and therefore putting in place active management, there is a very substantially different resource implication, I guess.

Joan Edwards: There is, but if you looked to make sure that we do have recovery, and if you carry out monitoring so you can measure that recovery, you will end up with an environment that people will want to go and visit, and I think that is what we have to think about. If we are going to have a network of Marine Protected Areas and they start to thrive with wildlife, we need to think of the potential then for education, research and tourism. That is where Marine Protected Areas could pay back to the economy, as well as hopefully producing more fish. There are other positive aspects of a healthy marine environment.

Melissa Moore: We support the precautionary approach and feel that that is much less expensive than trying to provide evidence of damage, which is very difficult and very expensive.

Q38 Dr Whitehead: You have mentioned the question of IFCA and MMO in terms of developing and implementing effective management measures for MCZs. What level of faith do you have in their ability to do that, and in particular what might your view be in terms of the resource requirement, assuming that a larger network than the 27 so far confirmed is envisaged?

Tom Hooper: The IFCAs are on the front line of the enforcement and the MMO is for the enforcement beyond six nautical miles. I think there are two sides to the story. One is making sure they have the resources in terms of boats and people-power to do that, but part of it is also about being sensible about the use of technology. We have mentioned the use of various black boxes. Technology is now there to enable pretty much remote monitoring and remote enforcement of these sites. It is that sensible use of technology that will make this much more cost-effective.

Joan Edwards: Also, as we have said earlier, we very much have welcomed the fact that the Government has given extra funding to the IFCAs to help with the designation and regulation of the first tranche. Maybe we do need more support to the MMO because the MMO and DEFRA are going to have to deal with the offshore sites and, when you are dealing with anything beyond six miles, you are having to deal with Europe and European fisheries. That is one of the biggest challenges we face over the next few years.

Q39 Neil Carmichael: On that point, I was just wondering what the anticipated changes to the Common Fisheries Policy will do to that whole question of beyond our six-mile range.

Melissa Moore: They should help, enabling us to manage our own Marine Protected Areas and protect our own Marine Protected Areas from foreign vessels, so the reforms should help.

Q40 Neil Carmichael: Yes, that would be the assumption. How are going to interface with those changes so that you can make sure they actually do help?

Tom Hooper: The main thing, from my point of view, is quota being allocated on the basis of how environmentally sensitive and how socially aware the fishery is. I think it is an important aspect of that. We want to be following very carefully the criteria that are used for the allocation of quota and for the way fishing is operating around protected areas. It is generally a question of the way fishing is operating, but more specifically within a Marine

Protected Area. I think these are agreements that we need to reach at a European level, and we would follow them very carefully to ensure that those sites do not necessarily end up being sidelined because of some opposition, for example, from French or Spanish fishermen.

Q41 Neil Carmichael: How are you going to counter that? Are you going to go through the CFP mechanism or deal more directly with each nation state as the need arises?

Joan Edwards: My understanding is that the CFP has been reformed in such a way that if the UK and another state cannot come to some agreement over the management of a Marine Protected Area beyond six miles, there is a time limit of six months. After six months, it has to go to the Commission. In the past when they discussed such issues, the CFP was so strong that it would just get stuck within the confines of the CFP. My understanding now is it would go to the Commission.

What we also have is the Marine Strategy Framework Directive, which basically has given an ultimatum to all the European countries. All European countries have to have an ecologically coherent network of Marine Protected Areas by 2016 and they should be well managed by 2020. If we are not getting traction through the CFP, possibly what we have to do is take some of the problems through the MSFD process and make the two directorates within Europe work together, rather than against or ignoring each other, as happens.

Neil Carmichael: The localisation element of the reforms of CFP should give you some ability to do exactly that.

Joan Edwards: Yes.

Q42 Dr Whitehead: Melissa and Joan, you mentioned that you were pretty unhappy about the idea of voluntary arrangements for managing the zones. Are you talking there about the extent to which you would have no voluntary input and the management would be, therefore, structured on formal, statutory provisions, or a horses-for-courses voluntary arrangement where there are circumstances under which voluntary arrangements could work for some aspects of MCZs and not for others? If that were the case, how would you distinguish which was what?

Melissa Moore: As I said, it is only fishing that would potentially have these voluntary measures, not other industries. They are a little bit upset that there is not that level playing field. For fishing, when it comes to trawling and dredging, where just one vessel not complying with the voluntary approach could ruin all of the work of many and ruin the site, we need a statutory measure, a byelaw, in order that they can go to court if necessary.

In addition, we have found with Lyme Bay, for example, where for years there was a voluntary agreement not to scallop dredge there, and then just a couple of scallop dredges from right outwith the area came in and ruined that agreement, they then had to bring in a statutory order. Now that that is in place, there are some voluntary measures just for potting, so those low-impact fisheries. Potentially we would consider voluntary measures for the low-impact fisheries but for those really damaging activities we feel regulation is essential.

Q43 Mrs Spelman: Just very quickly and relevant to this, on 14 February the Council considers a measure in relation to trawling that could seriously threaten this policy on Marine Conservation Zones. Have you, as a Link, collectively made your views known to the UK Minister who will represent us on that occasion?

Melissa Moore: Is that the deep sea one?

Mrs Spelman: Yes.

Melissa Moore: Yes, absolutely. We met him recently.

Q44 Chair: It would be very helpful to have a copy of that, as soon as possible.

Melissa Moore: Okay, we can do that.

Joan Edwards: We are all members of a coalition called OCEAN2012, and we have been working on the reform of the CFP for over 18 months on many of these issues, from discards to bottom-trawling, so, yes, we have been keeping the Minister informed.

Q45 Chair: Are you aware of whether or not the MMO have given some evidence in respect to that?

Witnesses: No.

Q46 Simon Wright: I would like to ask about coverage of mobile species. You have all criticised the failure of the MCZs already confirmed to take account of the protection of mobile species. Could you say briefly what the remaining main challenges and limitations are to be addressed before we can be confident that we can push ahead with comprehensive coverage of mobile species?

Tom Hooper: We think that mobile species should be included in the network. We are disappointed that they are not included in MCZs. One of the things about mobile species is of course that they are mobile; they move around, in some cases very large distances. That does not mean that we do not have very good knowledge of their key life cycle stages. We know where they breed and where they feed and their nursery grounds, so there are some very critical parts of the sea for these particular mobile species. To be clear, that includes cetaceans and sharks and seabirds as well. The data around those are very strong, so we would certainly be encouraging DEFRA to look at where those sites are and to reconsider their inclusion within the MPA network.

Q47 Simon Wright: Can you say something about how you would like to see the process for the next tranche of MCZs change to give fuller protection to mobile species?

Tom Hooper: I think it is still at the stage of consideration of whether mobile species can be included at all, and that would be the first hurdle that we would need to get over. My understanding is that there are over 500 Marine Protected Areas around the world for mobile species, so my first port of call would be to have that discussion with the statutory nature conservation bodies and DEFRA about the inclusions of mobile species, full stop. From then, we can talk about where and how we do it.

Joan Edwards: One of the difficulties we face is that we have mentioned the fact that we want Marine Protected Areas for mobile species to DEFRA on numerous occasions. We are always told by DEFRA that they have been advised by JNCC that Marine Protected Areas are not suitable for mobile species. We have been very careful because, as Tom explained, it sounds like they are mobile so why would a statutory Marine Protected Area be suitable? What we have said is that when we talk about mobile species we are talking about areas where they feed or they breed or moult and so on. In the consultation on the first tranche, we did put forward MCZs for mobile species, so we put forward some of our own proposals, but we have for many years been told that JNCC has advised DEFRA that you should not have Marine Protected Areas for mobile species.

Q48 Chair: On that note, I will bring this first panel to an end, and we have gone slightly over our allotted time. I would like to thank each of you for coming along and giving your evidence and helping us to commence our inquiry. Thank you.

Examination of Witnesses

Witnesses: **Dr Russell Wynn**, Head, Marine Geoscience, National Oceanography Centre, **Dr Matt Frost**, Deputy Director, Marine Biological Association, and **Dr Steve Widdicombe**, Head of Science, Marine Life Support System, Plymouth Marine Laboratory, gave evidence.

Q49 Chair: I would like to offer each of you a warm welcome this afternoon. We have just commenced our inquiry, and I think it might be helpful for you to know that we have just had a previous panel of witnesses. In welcoming each of you from the National Oceanography Centre, the Marine Biological Association and Plymouth Marine Laboratory, I think it might be helpful for you to know as well that the expertise of the universities, particularly of Plymouth, was flagged up heavily in our previous evidence session. On that note, given that we have quite a lot to get through and we are expecting a vote at 4 pm and we probably will need to tie up this session at about 3.55pm, I am going to turn directly to Caroline Spelman.

Mrs Spelman: First of all, welcome. What is your view of the quality of the scientific evidence that was used for designating the first tranche of MCZs? Do you think that we need that level of scientific evidence to support every future MCZ, or should we go on what is available now?

Chair: Your starter for five? Dr Frost.

Dr Frost: My view on the evidence that was used was that it was the best we could do with the process we were given. As you know, there was an issue that it was a stakeholder-led process, which never meant we were a science-led process like SACs. If it was a purely science-led process, we could have maybe had clearer evidence, high levels of evidence around the sites, but we were working with stakeholders to say, “What is the best evidence we have for a site?” even though another site might have been slightly better but we were working with what we had.

In terms of moving forward, I do feel that we are creating quite an unwieldy process in going down this features-based way of doing things. What we are doing at the moment is having these sites where we have objectives for all the different features. We are requiring

information on individual habitats and species. It is a very unwieldy process with quite a high bar in terms of the evidence requirements. I always feel it is a shame that, as Professor Dan Laffoley said in 2000, we probably have the best known marine environment in the world in terms of the data we have gathered, yet we seem to be always focusing on gaps.

Just to finish off, I would say that we will never get to the stage where we will tick a box and say, “There you go. We have the evidence now. Let’s move forward”. It is not a linear process. We have to work with the evidence we have and, once we implement MCZs, that then becomes part of the evidence gathering as well, which I can elaborate on but I will hand over to my colleagues.

Dr Widdicombe: My involvement in a lot of the process has been primarily revolving around the SACs rather than the MCZs, and I have to say that the experience I have had in looking at the ecological and environmental evidence associated with the SACs has been very positive. The evidence for those is very strong and very robust. As you may be aware, I was involved in a review of the whole process that went on with regards to Natural England, or English Nature as it was when the process first started. Although the report was fairly critical about the process it went through because of issues associated with the longevity of the process, the actual scientific evidence associated with nominating the SACs was very strong.

Q50 Dr Offord: I asked DEFRA what plans they had to address gaps in scientific knowledge in the designation of Marine Conservation Zones. They said that they commissioned additional research and evidence-gathering to address these gaps, and they continued to work with the partners. They claimed to have spent £8 million over three years and another £2 million in the next year. That does not seem to reconcile with what you are saying.

Dr Frost: No. They are collecting more evidence. They are seeking to fill the gaps, and the rest of my colleagues might have something to say on this in a moment. The point I am making is that we do have enough evidence to be working with at the moment. If you look at the evidence they are collecting—what I am trying to say is that there is this feeling that we will get to a certain level of evidence, and we will then tick the box and say, “There you go. We have all the evidence now. We can now implement MCZs”. The point is that we will never get to that point. We will have enough evidence to implement MCZs, but things will always change. We will need to keep going back.

One of the important things is implementing MCZs itself. As scientists, for us that is a major part of learning and gathering evidence. For instance, what is the impact of management measures? How do habitats recover if you remove certain pressures? Reference areas are very important in this. If you have a reference area, it enables us to then understand how certain species and habitats respond to having all the pressures removed. I just want to move us away from this idea that somehow there is a certain level of evidence, we will all reach that level, tick the box and move forward. I think we will always be collecting more evidence, so that was really the point.

Q51 Mrs Spelman: In a resource-constrained environment, what do you think should be the priorities for improving the evidence base?

Dr Frost: I will answer quickly and then I will pass it over to Russell. I would draw an analogy with the Marine Strategy Framework Directive. We have gone down a risk-based approach, so the priorities for us need to be looking at what habitats and species are most vulnerable, where there are clear threats, where we know there are pressures that are an issue. That is the way we have gone down in terms of the Marine Strategy Framework Directive, because you literally cannot collect evidence on everything. I will hand over to Russell.

Dr Wynn: There are a number of very positive things that have happened in the last three years in response to this challenge that you have mentioned. One of them is the UK's Marine Environmental Mapping Programme, MAREMAP, which is an organisation that involves several public sector departments and agencies working together to meet the challenges of collecting good data, now and in the future, to meet some of these needs. It involves people like us at the National Oceanography Centre, British Geological Survey, partners such as CEFAS as part of DEFRA as well.

To give an example of how that is working and supporting this process, several MAREMAP partners have been contributing to the MCZ reports for tranches 2 and 3 and providing our scientific input, both in terms of having workshops to share best practice, how to make sure that we are getting the best quality scientific techniques across all of the partners, but also making sure that we share data and we share resources for data collection going forward. That is very strongly supported at a high level both within DEFRA and the NERC. There are some positive things that are happening going forward now with that partnership working.

Q52 Mrs Spelman: One more question for Dr Wynn. Given that NERC are currently looking to establish their research entities independently, maybe even have them run privately, is that going to hold up this process in any way?

Dr Wynn: There is an ongoing consultation on ownership and governance. That is being led by NERC Corporate at Swindon, and the chief executive took questions on this in front of a House of Lords Science and Technology Committee on 21 January. That consultation is ongoing. I am not directly involved as a scientist, so I cannot speculate on what the outcomes might be. What I can say is that there is a Whitehall reference panel that involves partners such as DEFRA, who can input in that forum to make sure that the evidence that we are providing in NERC—there are some safeguards about making sure we continue that role in the future. I think the chief executive has made clear that in any future arrangement, whatever it may be, NERC's role in providing independent scientific advice to Government, business and the wider public sector will continue.

Dr Widdicombe: I wanted to make a comment on the subject of data gathering, and the fact that just seeing data as a mechanism of assessing monitoring or compliance with certain legislation is missing a trick, because the data that we gather for these things can be enormously valuable for the scientific community and also for industry. The more we can encourage initiatives that bring data together from multiple sources, encourage data sharing, data archiving, even things like data archaeology where we go back and obtain data that has been collected in the past and has been brought into more accessible forms, should be highly encouraged. In a resource-limited world, making the most of the data we already have should be our first priority.

Q53 Chair: Is the inference that it is not made best use of?

Dr Widdicombe: At the moment, I believe we can do much better with the data that we have.

Q54 Chair: Why do you think we do not?

Dr Widdicombe: There are certain difficulties in encouraging organisations to share data, be that through commercial in confidence, be that a perception—because data are valuable. They cost a lot of money to generate. Therefore, it is difficult sometimes to encourage efforts to bring those data together. Also, there might be separate policies in different organisations on how data are archived or treated, so some kind of harmonisation of these protocols would be a good way to move forward.

Q55 Peter Aldous: Were you happy with the stakeholder consultation process for the first tranche of MCZs? Was it effective?

Dr Widdicombe: From the personal opinion of someone who was not involved in that process, it appeared to me to be very stakeholder-heavy compared with the evidence support that has come through from science.

Q56 Peter Aldous: When you say “stakeholder-heavy”, just elaborate on that a little bit.

Dr Widdicombe: Stakeholders. I mean more to do with people who are using the environment as a resource of—

Q57 Chair: Did you mean business interests?

Dr Widdicombe: Primarily business interests, I think.

Dr Frost: We had a number of members of the Association and a number of our staff who sat on the regional committees, so I am just reporting back what we were told. The feeling was that they were very strongly dominated by industry and the commercial sector. For instance, if you take Finding Sanctuary, which is the south-west regional group, and look at who sat on that, there were very few independent scientists. What I mean are scientists who were not working with NGOs; it was mainly fishing and other commercial interests. The feeling was not just about numbers. It was about equivalency in terms of how the evidence was judged, and I think there was a feeling that, for the scientists, it has been very difficult. They have had a quite high bar set, and the scrutiny the science was put to was quite harsh and quite strict, whereas it was felt that the commercial sector merely had to point out a figure or some issue around some activity and that was taken as enough to say, “Put that particular MCZ to the side”.

Q58 Peter Aldous: I will declare a constituency interest in that CEFAS are based in my constituency. What role did they have in the process?

Dr Frost: CEFAS? I do not know because they were not involved in Finding Sanctuary, which is the south-west regional one. I imagine they would have had some input into one of the other regional groupings.

Q59 Peter Aldous: If CEFAS were not having groupings in those, wouldn't you have expected someone the equivalent of CEFAS to have played a role?

Dr Frost: As I said, I do not know which ones they sat on and how they were involved, but CEFAS would be an example of the type of organisations. It is essentially having people there that did not have an agenda, that were purely there with science expertise to say, "If you choose this site, we know something about the science there and how that can affect the ecosystem health". It was a feeling that that sort of view was quite minority and a lot of it just bore down to industry people and maybe NGOs and others just discussing generally.

Q60 Chair: Can I just come in on that point? Mr Aldous rightly makes a point about CEFAS and the role that you would have expected them to have in this. How much does the approach that was taken by this process going forward compare with the process, for example, in Ireland?

Dr Frost: I cannot comment on the process in Ireland, but I think we have to be careful, because the idea of the stakeholder groups was to open them up as wide as possible to lots of interest and it was useful to have the scientists in there, but there were other processes. CEFAS, JNCC and these sorts of groups would be involved in other processes in terms of analysing evidence, for instance where there were evidence gaps, putting maps together. I think CEFAS would have been more involved—

Peter Aldous: They would have had a more overseeing role?

Dr Frost: I think so, but I am not saying that is definitely the case because, as I said, I did not take a big view on how CEFAS were engaged.

Q61 Peter Aldous: Would it be fair to say that the fact that a relatively small number, 27, of MCZs were designated was down to the limited scientific input? Can you make a direct correlation on that?

Dr Frost: I could not say definitely that was why. Once again, the feeling from the people involved and members of our staff on that was that it was down to not the lack of scientific input but maybe the unequal weight given to scientific and economic criteria. For instance, I have previously given evidence where I pointed out the south of Falmouth site that was not put forward. That was based on an annual cost of £1,000 as the economic impact of siting an MCZ there. That seems crazy when you have scientists saying that 25 kilometres squared of seabed being protected could give you a lot more value in terms of ecosystem valuation, but there was no way of making that sort of comparison equal. I think it was not that the scientists were not saying anything or it was not the fact of just getting more science in there, it was that when you compare the scientific evidence and the points being made and then the economics, there was no way of balancing those two.

Dr Wynn: I can provide a comment that might help that as well. In some of the tranche 2 sites, CEFAS are leading and gathering additional evidence for those sites and we have been working with CEFAS. We have done some of the reports for sites of southern England and what we have found is that when we went back and looked at the interpretation of the data that had been collected as part of this money that you mentioned earlier to firm up the evidence base, some of the areas, the amount that was produced for a

habitat map was significantly improved after that data collection exercise. It does not just help us firm up the evidence for whether or not these sites should be designated and the shape and so on but, in terms of how you manage those sites and the science behind going into how you manage those sites in the future, the better quality data that you have, the more confidence you can have that the management measures themselves are going to be appropriate for the sites. That is an important role that CEFAS have been playing currently.

Q62 Peter Aldous: Do you think the system has been improved in the second tranche with more emphasis on data collection and a greater weighting on the scientific input?

Dr Wynn: Again, as Matt says, best available evidence is almost an unobtainable thing in the marine environment, but I would say, based on personal experience, that on some of the sites we have worked on the evidence base has been significantly strengthened by the extra investment in data collection that has been co-ordinated by CEFAS.

Chair: Did you wish to add to that, Dr Widdicombe?

Dr Widdicombe: Only from what I have seen with the SAC designations and nominations, which was primarily a scientific-led activity. There was a drastic improvement in the data required to map features and designate areas where specific habitats were over the years as that process went along, and in fact now it seems to be very robust and quite a reliable process.

Q63 Dr Offord: By their very designation, Marine Conservation Zones have been ascribed a value that other parts of the sea do not have and, as such, they are likely to become contested areas through scientific, recreational and commercial interests. How would you see those interests being balanced in future tranches of the conservation zone designation?

Dr Widdicombe: In multiple-use areas?

Dr Offord: Yes.

Dr Widdicombe: The key is going to be monitoring activity use and also in assessing impact, understanding impact as well. At the moment there is still a lot of work to be done to understand specific effects of particular activities in the marine environment, associated to something we touched on previously about the impact that those activities will have on the value of the marine environment. I think the socio-economics of sustainable use in the marine environment is still a growing area of research that needs to be encouraged but is starting to show very useful and interesting techniques in understanding how things like non-use values can be affected by different activities. I think by bringing forward this kind of understanding in a multiple-use, multiple-stress environment will give us more of an insight into how these multiple-use areas might be affected.

Dr Frost: Just to reiterate what I said before, the issue of how we use socio-economic and ecosystem health evidence is really important. For instance, there was a report recently that said if all 27 MCZs were designated, the value just to recreational diving and angling was between £730 million to £1,310 million. That is their value estimated in that report.

Q64 Chair: What was that?

Dr Frost: It is a United Nations environment programme report. I can send in the full reference. That is just one example of one activity that benefits from MCZs. The way I see it as a scientist, as I said, is those sorts of figures need to be put in there and at the moment they are not being captured well enough. It is too easy just to say the cost to a fisherman or the cost of laying a pipeline or whatever is X. We do not have an answer for that on the scientific side, so I think developing this sort of area is very important. Also the issue of scale needs to be taken into account, because often ecosystem services and goods are valued over very long time scales.

Dr Widdicombe: Those particular numbers that Matt referred to are very much towards the easier ends of valuations to come by. If we start to talk about other services such as the cleaning of water, the carbon sequestration, air and sea gas fluxes and exchanges, these kind of things are much more difficult to get a handle on when it comes to associating value to them. There is a spectrum of things that become slightly more easy to value and those where we are still struggling to find appropriate metrics in order to attach a value.

Q65 Chair: Why is carbon sequestration more difficult to include in this?

Dr Widdicombe: It is understanding the process of how much carbon is captured by marine processes and marine organisms. In essence, sequestration is about the capture of carbon by biological organisms and the burial within the seabed. There is a large programme starting this year that will be looking at the coastal shelf seas around the UK and how they are contributing to the quantity of carbon that is going in. The link from grams of carbon to a value is now another area of work that needs to be put forward.

Q66 Dr Offord: At the weekend, I attended the International Shipwreck Conference at Plymouth and what came out very strongly from people there was that economic issues will always take precedence in MCZs. How would you like to see the Government get across the social and economic benefits of the Marine Conservation Zones, particularly to those people who are engaged in activities, be it archaeology or scuba diving?

Dr Widdicombe: Carrying on from my last point, I think again it is about firming up the kind of techniques and processes by which we can determine value, and value might not necessarily be pounds. You need to work out what are non-use or perception values or bequest values, so how people think about, “What value is it to me to be aware that the marine environment will be safe and will be in good hands for my children and my grandchildren?” People never use polar bears, but there is a certain value associated to them because people value the fact that they are still there. These kind of non-monetary values I think need to be far better explained, far better explored and embedded far more in public conscience so that when we talk about value of systems, it is not just how many pounds we can get out but what they are providing to us.

Q67 Dr Offord: Are your individual organisations trying to define those values through the work that you do?

Dr Widdicombe: A number of institutes around the UK are looking to explore those. It has been a fairly difficult process to start with, because that kind of science sits between traditional disciplines. It is a bridge between natural science and ecological science and

economics. Sometimes the ecology is seen to be somewhat simple and the economics are seen to be simple but the value is combining them, and getting funding or getting interest to do that has been a slowly growing process.

Dr Wynn: I would add, just broadly, that the more opportunities there are for partnership working between the relevant Government agencies and the scientific community in the future, that is going to help the process, jointly-funded programmes, for example, both in terms of collecting some of the scientific evidence but also, as we have mentioned, looking at some of the socio-economic aspects that can be provided by the research sector. I think opportunities to facilitate that would be helpful going forwards.

Q68 Chair: Given that applications for funding from different organisations are very much done on a kind of silo basis, and given the need that you have described to have some kind of overall framework in which you could get this assessment, who should be making sure and overseeing that that should happen? There is no equivalence of a matron to oversee all of this, is there? Who should be doing that and where should it be done?

Dr Wynn: The Marine Science Co-ordination Committee obviously has an overseeing role in the process, but I think it is fair to say that if you spoke to the NERC chief executive, Duncan Wingham, or the chief scientific adviser at Defra, Ian Boyd, they are very much saying the same thing about the benefits of partnership working going forward. There are good examples of that: NERC and Defra are co-funding a shelf sea biochemistry programme, for instance, to try to get a better scientific understanding of some of the processes that Steve mentioned and trying to bring the scientific and the Defra community together to firm up that evidence and look at the processes. There are already initiatives where there are joint-funded programmes, but certainly more opportunities to do that would be good in the future.

Dr Frost: Could I add that I think there is also something that is often missed here, which is the value of communication. If you talk to scientists and those involved in the process, we all know that there is value to the ecosystem. Your question is interesting; usually it is phrased as socio-economics or conservation or, “Do we have MCZs or do we have industry?” Most of us in the process know that a healthy ecosystem will produce the goods in the long run. It is good for industry, it is good for the fishing community, it is good for everybody to have a healthy ecosystem, but I do not think we are all very good at selling that message. I agree totally that we need more research in this area, but I also think there needs to be a lot better communication on the research that has been done because, along with the National Ecosystem Assessment, phase 1 and phase 2, and along with some other major global assessments, going back to the Costanza paper in 1997, people have been giving this message that a healthy ecosystem benefits the economy. I think it is important to communicate what we already know. That is an issue as well.

Q69 Dr Whitehead: In terms of management measures planned or put in place for the MCZs we have designated, how effective and proportionate do you think they are going to be?

Dr Frost: I cannot answer that because I am not sure what the management measures are that are being proposed. This seems to be a fundamental problem. We all know that there are a range of management measures that are put forward as options, but to say how

effective they are is impossible because we have not been given—unless I have missed something—a breakdown of what management measures will be applied against what features, what MCZs. It is absolutely a crucial question because, of course, we are all talking about MCZs, but without any information on the management measures we do not know what that means. Is an MCZ, as some of the NGOs perhaps would claim, a paper park—it does not mean anything, we are not managing anything—or is the industry able to say, “It is going to be over-managed and we are not going to be able to do anything”? We do not know because we do not have the full information yet, so I am not sure I can answer your question. I do not know if the other two have any more information that I do not have.

Dr Wynn: It is certainly true that in our resource-limited environment, it is going to be a very big change. One of the things that we are doing within the National Oceanography Centre, and broadly within NERC, is working again with Defra to look at how we can use new technology for future management of monitoring of sites, looking at marine autonomous systems to try to do the work effectively but at reduced cost. For some of the offshore sites, which tend to be where there is the greatest expense because you need big infrastructure to go out and look at the quality of those sites over future periods, we should look at how we can work together between the science sector, where we have mutual scientific interests, with maybe some of the long-term observational needs that a body like Defra and its agencies would have around specific offshore Marine Conservation Zones. I think there is a big challenge there, but by working in partnership there are opportunities to do the work at reduced cost by sharing resources and expertise and bringing in new technology.

Q70 Dr Whitehead: Putting those two points together, we do not know what sort of management is going to be applied and to what extent. We have a number of options. Some may be those new technologies, you might say putting forward sort of virtual management, oversight management and so on at perhaps lower cost than might otherwise be anticipated. How would you put those together in terms of what you might think would be a reasonable management arrangement, all those options considered?

Dr Wynn: I think as Matt has said, until we get the information about specific measures at specific sites, it is very hard either for the stakeholders or for us as scientists to forward look as to how we might contribute. I think everyone in the community, from whatever sector you are coming from, are waiting for that information to come forward. That is a very consistent message, so I think as soon as we get that—the industry stakeholders obviously have an interest in that, but also the science side might be able to benefit and contribute to that process—we can then start moving on a specific basis. At this point, it is very hard to comment further.

Dr Widdicombe: I would like to add that I think the very first step is to define what the purpose of the management is because the intention and the purpose will often define the way in which the management is rolled out. As long as we start with a clear vision of what the purpose of the management activities is, then it becomes more straightforward to define appropriate management strategies and monitoring programmes as well.

Q71 Dr Whitehead: In terms of defining what the purpose is, it may be a range of potential purposes from, “Here they are. Let’s try to keep them more or less as they are”—

which presumably is a process of making sure that no one ploughs the bottom of the zone up or otherwise does not pollute or infract on the zone—to hopefully we might have a reasonably accurate picture to say exactly how degraded the zone is at the moment and therefore perhaps have target measures, management measures for improving that zone and that environment and developing it positively as a zone that will have active management applied to it. Where might you stand on that spectrum, do you think?

Dr Widdicombe: Again, I do not feel it is my place to define the purpose of what these various different zones are, because it might be that you end up with a range of different purposes for different specific areas that you want to conserve. As you say, in some you might want to be restoring biodiversity to a particular level or restoring habitat health and function. In others you might have an area where you are looking to maximise production or fisheries potential. That is a decision that has to be made over certain sea areas and what the purpose specifically is there. One thing I would like to make a point about on this concept of keeping things as they are is that I do not think it is going to be possible in the long term to keep things the same. What we know about the marine environment is that change is happening and change will continue to happen. The fact is that we are managing a moving baseline and it is about what we want our environment to look like rather than just trying to keep things still.

It comes back to a point that Matt made earlier with regards to the use of reference sites as well, to give ourselves something to judge against, because there may be situations where you have an area where you are putting in effective management yet you are not achieving the management outcomes that you thought you were going to achieve. That might not be because your management has failed, but it might be because of processes that are over and above your control. If we have changing temperatures, changing seawater chemistry that can impact upon the effectiveness of your MPA or MCZ that you are not being able to account for, that could put a doubt in your mind that your management processes are effective.

Q72 Dr Whitehead: But is there a bottom line in all this? Dr Frost, you have mentioned in your written evidence about the difficulties of what you describe as gentlemen's agreements, and presumably that then implies the extent to which you would need byelaws, statutory arrangements, constant information. Is that an overall bottom line or are there circumstances in which, because of the different arrangements and moving baseline, a variety of voluntary and professional statutory management arrangements might come into play?

Dr Frost: I think you are going to need some statutory legislation. I am speaking here slightly outside the realms of a scientist, because these are policy decisions but, yes, I think you are going to need some statutory regulation to control certain activities that we know will damage and compromise an MCZ or the species within them. I think what Steve is talking about in terms of these baselines is, as far as I understand, that it has always been accepted that if it is outside of your control, you cannot infract or prosecute somebody, but what it does mean of course is that we have to be very careful about managing things purely at the local level. I think that goes for our monitoring as well. There is no point in managing a small site and monitoring the site at a very local level if you are getting these large-scale changes just offshore that are going to then compromise that site. That is an important point to make.

Within the Marine Strategy Framework Directive, for instance, the wording is that biodiversity is maintained according to prevailing environmental conditions. We are doing a lot of work to look at what those prevailing conditions are and how that might affect us reaching good environmental status. I think that is quite a nice analogy. Under the MSFD it is also worth mentioning that in 2016 we are going to have to have a programme of measures; essentially how we manage the ocean holistically to meet good environmental status. Clearly that has to be thought of alongside local management measures for MCZs. It is going to be a big mistake if we have a very siloed mentality of, “We will manage and monitor this MCZ at this point”. There has to be a broader and more holistic approach, and I think that makes sense in terms of limited resources as well.

Dr Wynn: I think the other thing is that in terms of resources, unless there is significant long-term sustained funding to do the monitoring properly, the quality of the data that are produced may not be good enough to test the efficacy of any management measures for specific sites. The role of the IFCA, the Marine Management Organisation, the statutory nature conservation bodies in this process is being defined at the moment, but without the long-term sustained funding to collect data to have the evidence base to test whether the management measures are effective and whether or not other types of changes to the marine environment are more or as important as those management measures, it is going to be very hard to disentangle that. I think there is a strong case to make sure that there is sustained funding to not just designate the sites, which we are doing at the moment, but to make sure that we collect data from them to prove whether or not the management measures are effective or not.

Q73 Dr Whitehead: In terms of what you know is around as resource and resource for the future, does that constitute anything like long-term sustained funding?

Dr Wynn: I think it is a significant risk, and at the moment within the public sector we are doing what we can with co-ordinated programmes like MAREMAP and the Integrated Marine Observing Network to bring our resources together to get best value of things like ships and autonomous technologies and suchlike. Nevertheless, the people that are going to be implementing the management measures, such as IFCA and MMO, are going to be the ones in the front line and unless they have sustained resource, it is going to be very difficult for them to do that job effectively.

Chair: On that note, I would like to thank each of you. You all three have a wealth of knowledge that you have been prepared to share with us this afternoon and I am sure that the evidence that you have given will shape our inquiry. Thank you very much indeed, particularly on a day of a Tube strike, for actually getting here.