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Providing evidence of impact from public engagement with research: A case study from the UK's Research Excellence Framework (REF)

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Abstract

Societal benefits of public engagement were recognized as 'impact' from research in the UK's recent Research Excellence Framework (REF), which determines an allocation of central government funding for universities and shapes the landscape for university researchers undertaking such activities. This paper shares experience from a successful REF Impact Case Study based on a programme of informing/inspiring-type public engagement, illustrating how engagement goals can match definitions of impact for the REF, and summarizing types of evidence used to demonstrate 'reach' and 'significance' of impact in media engagement, face-to-face engagement and online engagement, which represent common activities undertaken by many researchers.

Keywords: measuring impact; Research Excellence Framework; media engagement; online engagement

Key messages

- Raw numbers quantifying 'reach' of engagement lack context and often require presentation with a suitable comparator to assess them.
- 'Significance' of impact can be demonstrated by behavioural responses of target audiences that are consistent with engagement goals, triggered by specific engagement interactions.
- Media interactions represent public engagement rather than dissemination when they involve direct interviews by journalists, which represent dialogue with their audiences by proxy.

Introduction

The Research Excellence Framework (REF) is the periodic assessment of 'research quality' currently used to determine the UK government's allocation of 'mainstream quality-related (QR) funding' to individual higher education institutions (HEIs). This general QR funding, which exceeds £1 billion per annum, is a key source of income for HEIs, in addition to income from tuition fees and specific research grants from funding bodies such as Research Councils UK (HEFCE, 2017).

The most recent iteration of the REF (REF2014) evaluated research activity between 2008 and 2013 to inform QR allocations for 2015–2021. It introduced 'impact' as a new element in its assessment of the quality of research in universities, and defined

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'impact' as 'an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia' (REF, 2012a). In principle, the inclusion of contributions to society and culture enabled wider public engagement activities to be counted as impact from research, and contribute to determining QR funding for HEIs.

The REF2014 adopted Impact Case Studies as a vehicle for HEI researchers to showcase benefits from their research to communities beyond their academic peers. Each Impact Case Study was graded by expert panels that included researchers with experience in the broad subject area and a few representatives of research users. Impact Case Studies were graded on a scale from 4* ('outstanding impacts in terms of reach and significance') to 'unclassified' ('little or no reach and significance'/'not eligible'/'not underpinned by excellent research'), and 'impact' contributed 20 per cent to the overall assessment of 'quality of research' for the REF (REF, 2012a).

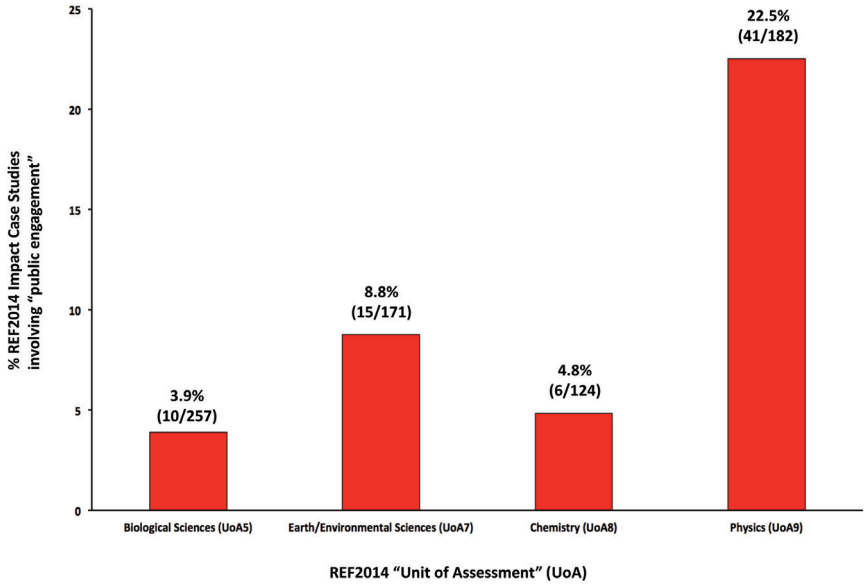
The award of a 4* score to an Impact Case Study in the REF2014 has been estimated to be worth more than £300,000 in QR funding on average over the 2015–2021 period, and around five times the QR income generated from submission of a 4* research paper (Reed and Kerridge, 2017). With such financial outcomes at stake, the perceived criteria for success in the REF may exert a strong influence on researcher behaviour at UK HEIs (Murphy and Sage, 2015), with the new impact element potentially shaping the involvement of researchers in activities such as public engagement (Smith *et al.*, 2011).

Overall, 47 per cent of 6,975 Impact Case Studies submitted in the REF2014 included some elements of 'public engagement', defined as 'interactions with people outside academia, in their capacity as citizens and members of communities of place or interest' and excluding interactions with policymakers, businesses and professionals (Duncan and Manners, 2017). The proportion of Impact Case Studies featuring public engagement varied considerably among individual Units of Assessment for sciences, however (see Figure 1), for example ranging from 3.9 per cent of 257 Impact Case Studies in biological sciences to 22 per cent of 182 Impact Case Studies in physics (own compilation of data from published Impact Case Studies, using similar criteria to Duncan and Manners (2017) to identify public-engagement activities).

Public engagement was often included alongside other impacts, such as those in policy or professional practice, in the Impact Case Studies for REF2014. Relatively few Impact Case Studies were based exclusively on public engagement, which may reflect caution in the HEI sector in presenting evidence of outcomes from such activities. To encourage development in this area, the independent review of REF2014 by Stern (2016) specifically recommends that 'impacts on public engagement and understanding are emphasised' for the next iteration of the REF in 2021.

The aim of this paper is to share experience of preparing a REF2014 Impact Case Study based exclusively on public engagement, which I led at the University of Southampton, for its submission to the REF Unit of Assessment in 'Earth Systems and Environmental Sciences'. The activities were generally researcher-led rather than mediated by others, and within the 'informing/inspiring' mode of engagement that focuses on dissemination of research findings, rather than 'collaborating' or 'consulting', which have a greater focus on co-creation and direction of research through public engagement (Science for All, 2010). These characteristics define a common form of public engagement undertaken by scientists, and an example of building an Impact Case Study from them may therefore be of interest to researchers and other HEI staff involved in public engagement for future iterations of the REF.

Figure 1: Proportions of REF2014 Impact Case Studies featuring public engagement submitted to individual Units of Assessment for sciences (data compiled by the author from published REF Impact Case Studies, using criteria similar to Duncan and Manners (2017) to define public engagement)



Background to the Impact Case Study

Our REF Impact Case Study was titled 'Explore the deep: Public engagement with deep-ocean research' (Copley *et al.*, 2015), which provided a focus to pull together existing public engagement activities relating to research on deep-sea environments and their biodiversity, and develop them further for REF2014. Deep ocean environments, defined as depths greater than 200 metres, cover more than 65 per cent of the surface of our planet and are under increasing pressure from human activities, ranging from exploitation of their resources to the disposal of our waste. The ambition for public engagement with our research is therefore to raise awareness of the diversity of habitats and life in the deep ocean, the impacts that our everyday lives have on the deep ocean, the potential of resources in the deep ocean, and the choices that we are all involved in to determine its future. We therefore created opportunities for people to share in our exploration of deep-ocean environments and their biodiversity, engaging with us both during our research process and in the dissemination and discussion of our research findings.

During the REF period, we planned and undertook three strands of activities to address our overall ambition for public engagement with our research: (1) engagement with traditional media (interactions with journalists for news media and with programme makers for broadcast documentaries); (2) direct/face-to-face engagement (public talks, exhibits and events); (3) online engagement (website, blogs and social media).

The Research Excellence Framework criteria for assessing impact from public engagement were not clearly defined until part way through the REF2014 period, and most of the key strands of activity in our engagement programme already existed (as shown in Figure 2) prior to the release of those details in spring 2010. The release of the REF details, however, subsequently guided our further choice of activities and design of evaluations.

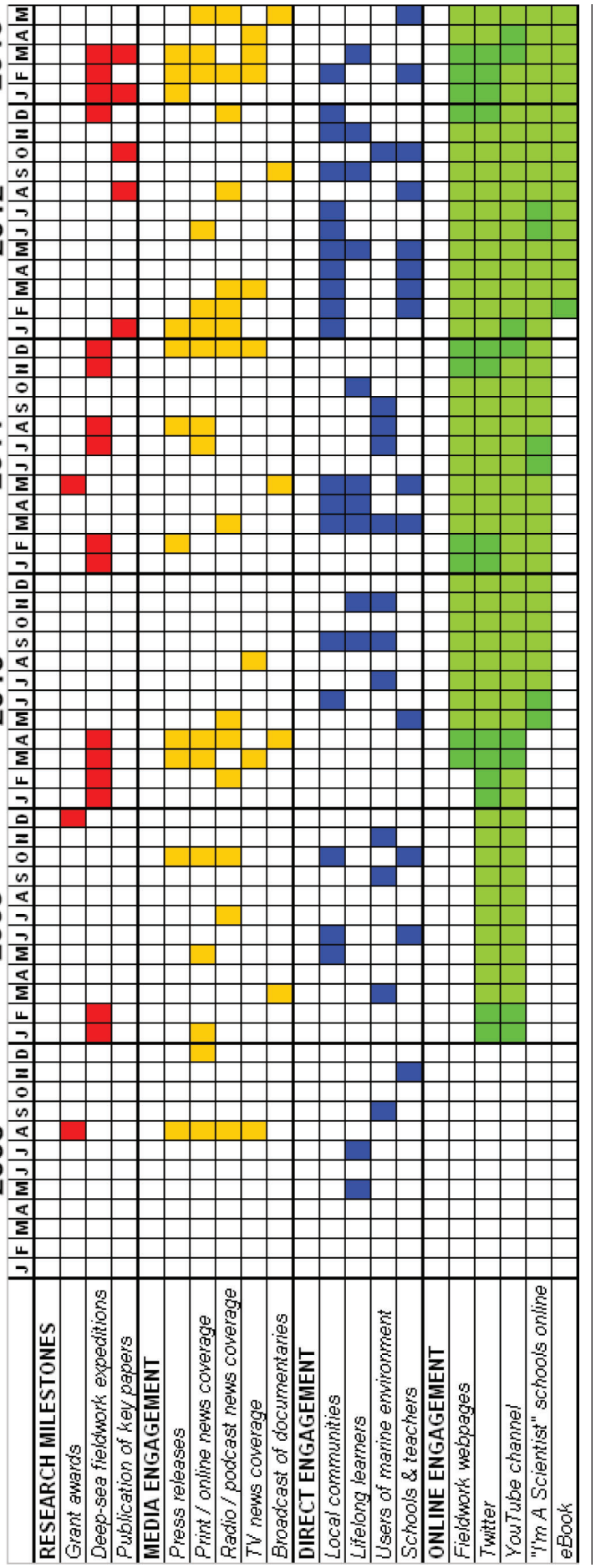


Figure 2: Integration of public-engagement activities within our research process during the REF2014 period: months containing research milestones (red); press releases related to research milestones and resulting media engagement (yellow); face-to-face engagement activities with specific communities of place and interest throughout our research process (blue); interactive online resources produced during fieldwork (light green) that subsequently provided online presence for engagement (green).

Our engagement programme involved several academic staff who were principal investigators and co-investigators on three separate deep-sea research grants funded by the UK Natural Environment Research Council (NERC) during the REF period, and postdoctoral and PhD students who were directly involved in the research. During the REF period, our research included six fieldwork expeditions investigating ocean-floor environments using research ships and deep-diving vehicles (three expeditions in the Antarctic; two in the Cayman Trough of the Caribbean Sea; and one in the south-west Indian Ocean).

For the REF, impact must be directly related and attributable to specific research outputs, which are usually published research papers. Those 'underpinning' research outputs can have been published before the REF period (since 1993 in the case of REF2014), but the impact shown from them must take place during the REF period (2008–2013 for REF2014). Because our impact was generated through engagement with our research process, and the dissemination and discussion of our findings, the underpinning research papers for our Impact Case study were all published during the REF period (for example, Rogers *et al.*, 2012; Connelly *et al.*, 2012; Amon *et al.*, 2013), rather than before it. In fact, most of our underpinning outputs were published towards the end of the REF period, as we engaged people during the fieldwork expeditions that eventually generated those research papers.

Defining engagement goals and target audiences

We defined specific engagement goals from the guidance on impact provided by HEFCE for our REF panel ('Main Panel B criteria', REF, 2012b), consistent with the overall ambition of our programme: 'generating inspiration and curiosity about science', 'raising public awareness of our research insights and their context' and 'providing cultural enrichment by supporting lifelong learning'. These goals identified outcomes that we could then use to evaluate our engagement activities.

For our activities involving traditional media and online engagement, our target audience for 'raising awareness' was necessarily wide, and we sought to reach people with media or online access worldwide, as everyone is potentially a stakeholder in the future of the deep ocean through their use of its resources.

For our face-to-face engagement activities, however, we defined four communities of place and interest as our target audiences: (1) local communities in the southern UK, because that is where we are located, through community groups and events; (2) school students, both through visits to local schools and national online events, and teachers via continuing professional development events for science specialists; (3) users of the marine environment, such as recreational sailors and divers, through events such as the Southampton Boat Show that are less traditional venues for engagement with research; and (4) retirees/lifelong learners as a distinct and separate constituency, through networks such as University of the Third Age and special interest societies.

Integrating engagement activities with our research

To integrate the three strands of engagement activities with our research, we identified key milestones in our research process: awards of funding for specific projects, deep-sea fieldwork expeditions and publication of research papers (see Figure 2). For engagement with traditional media, we produced press releases at these key milestones, for example: announcing awards of funding to highlight the goals and

context of our research; the departure of fieldwork expeditions and discoveries made during them, to publicize opportunities for people for share in our research via our online engagement resources; and publication of our papers to raise awareness of our research findings.

Meanwhile, our programme of face-to-face engagement activities took place continuously throughout the REF period (see Figure 2), and each event provided an opportunity to highlight our online engagement resources for further interaction with audiences. For our online engagement, we created a core engagement website (www.TheseAreTheVoyages.net) that carried daily blog posts with pictures and videos from four expeditions aboard research ships during the REF period. While live during the expeditions, the website invited comments and questions from visitors, enabling two-way communication with our audience. Although we only produced content and enabled interactive features during fieldwork periods, the archives of each expedition's blog posts provided a legacy resource afterwards (see Figure 2), on the website and as two free eBooks, for online audiences interested in finding out more about our research process.

We also created a presence on social media platforms (Twitter, YouTube) to act as portals bringing users of these sites to our core engagement web pages, and as additional channels for discussion of our work with audiences. Participants in our fieldwork expeditions, from senior academics to graduate students, were encouraged to use social media for live public engagement during our research expeditions, thereby offering a variety of perspectives and narratives of our work to engage audiences. Our core website linked to the social media feeds of those taking part, and we also used a hashtag to enable audiences to follow all the feeds together, and take part in online conversations with team members.

Providing evidence of 'reach' and 'significance' for different types of engagement

For REF2014, 'impact' relevant to public engagement was defined to include 'an effect on, change or benefit to the attitude, awareness, behaviour, or understanding of an audience, community, or individuals in any geographic location whether locally, regionally, nationally or internationally' (REF, 2012a). The published criteria for assessing impact by Panel B, to which our Impact Case Study was submitted, then provided the following examples of types of impact relating to the informing/inspiring mode of public engagement:

> Public interest and engagement in science and engineering has been stimulated, including through the enhancement of science and engineering-related education in schools [and] the awareness, attitudes or understanding of (sections of) the public have been informed (REF, 2012b).

The REF2014 adopted principles of 'reach' and 'significance' to demonstrate impacts. Reach is conceptually straightforward, encompassing not just audience numbers but also demographics relevant to engagement goals. Collecting evidence for reach did require us to make the quantification of audiences part of our routine, however, particularly at face-to-face events run by others. Raw numbers for reach also lack context, and therefore often require presentation with a suitable comparator to assess them.

Providing evidence for significance is less straightforward; examples of evidence provided in the guidelines for Panel B included: 'evaluation data', 'user feedback

or testimony' and 'evidence of sustainability, through, for example, a sustained and ongoing engagement with a group, a significant increase in participation in events or programmes, continuing downloads or use of resources' (REF, 2012b).

The fundamental challenge for significance is to demonstrate a behavioural response in the target audience that is consistent with your engagement goals, and arising specifically from your engagement interaction, not from other possible stimuli. For example, highlighting national data that show an increase in uptake of STEM subjects at A level cannot be attributed to the activities of a single schools engagement programme; in contrast, an increase in applications to study a specific science at university from a particular school with which researchers have engaged could constitute evidence for significance of impact.

For each strand of our engagement activities, we therefore identified possible behavioural responses consistent with our specific engagement goals, and sought to capture evidence of those outcomes, as summarized below. Although the evidence in some cases was unavoidably anecdotal (for example, from user feedback or testimony), we pursued multiple lines of evidence for significance in each engagement strand to build a comprehensive picture for the impact of our programme overall.

Media engagement

Journalism takes place in the media, but not everything in the media is journalism. Based on the personal experience of the author as a full-time science journalist, the idealized role of journalists, as distinct from opinion columnists, is to act as agents on behalf of their audience, gathering and providing information about current events and their context. Science journalism in particular has evolved from uncritical translation or even cheerleading of science into more critical evaluation of research and investigation of its implications for the journalist's audience (Rensberger, 2009). Interaction with journalists therefore represents public dialogue by proxy: the questions that a journalist asks should be those in the minds of their audience, and the aspects of information that they pursue and present should represent the interest of their readers or viewers, with different media outlets often serving constituencies with different interests.

In evaluating our media engagement, we therefore made a distinction between primary interactions with journalists, involving direct interviews about our research, and secondary follow-on coverage, where no further questions were asked by other journalists reporting the story elsewhere. Secondary coverage also often included reworking of press release material provided by us about our own work without any questions or independent comment to provide critical evaluation or context, which represents 'churnalism' rather than journalism (Davies, 2008). However, follow-on coverage can provide some evidence for significance of impact, as described below.

Between January 2008 and June 2013, team members gave more than 100 direct media interviews about our research, generally triggered by our preparation of press releases at key milestones in our research process. Our direct interviews ranged from local media (for example, 10 local newspaper and 17 local radio interviews), to national outlets (for example, 10 national newspaper interviews; 2 interviews for the BBC Radio 4 *Today* programme; 2 interviews for *Channel 4 News*), and international media (for example, the *Washington Post*; *BBC World*; *New Scientist*). Our research also featured in 6 broadcast documentaries, including a *National Geographic* series that aired in 170 countries.

Quantifying reach for media engagement would appear to be straightforward: ask journalists or producers to provide numbers of viewers, listeners or readers for media reports of our research. But in practice such data are often commercially sensitive, and not available from media outlets despite the goodwill of individual journalists and producers in trying to provide them.

There are exceptions, however: public service media, such as the BBC, did not appear to regard such data as sensitive in our experience, and seemed able to provide them more readily. This therefore shaped our media interactions, leading us to favour engagement with BBC outlets, including releasing one news story about our research as an exclusive to a BBC journalist in the first instance (Morelle, 2011), although that approach still resulted in widespread follow-on coverage by other media outlets. We also worked to embed a BBC news team on one of our fieldwork expeditions aboard a research ship, enabling them to report on our work live via satellite from sea (Shukman, 2013). In total, during the REF period our research was reported across the BBC in 5 News Online articles; 9 national TV news bulletins; 8 programmes on Radio 4; 5 World Service broadcasts; 4 Radio 5 Live broadcasts; and 15 BBC local radio programmes.

For some other media outlets, it was still possible to estimate reach from general audience numbers that are available for some publications or broadcasts, for example using data released by the independent Audit Bureau of Circulations (www.abc.org.uk). However, using such estimates relies on the assumption that the circulation figures for a newspaper represent the number of readers for a particular article in that newspaper, which may not be the case.

We obtained evidence for significance of impact in media engagement in five ways:

1. Follow-on coverage by other media outlets provided evidence of 'generating interest and curiosity' about our research among journalists, acting as proxies for their audiences. For example, one press release of a research finding resulted in 7 direct media interviews with team members at sea, but more than 520 follow-on articles about the research by other online media outlets, tracked by Google News.
2. Social media sharing of online media coverage by audiences provided evidence of 'raising public awareness of our research insights'. Data on social media shares (for example, tweets, Facebook likes, StumbleUpon shares and Google+ recommends) of specific articles were often published by online news outlets, enabling us to compile examples of this sharing response to media reporting of our work. For example, four online media articles covering the publication of one of our research papers (Amon *et al.*, 2013) were shared more than 11,000 times in total. Although such absolute figures have no context, they demonstrated a behavioural response triggered by our specific media interaction that was consistent with our engagement goal.
3. 'Below the line' comments from readers or viewers of online media coverage provided examples of 'generating inspiration and curiosity' and 'raising public awareness of our research insights'. Examples included: 'Lovely photos, now even more questions about the murky depths of our own planet; thanks for a great story'; 'Wow. Just the notion of a "whale fall" – so amazing'; 'This is so exciting. How I wish I had gone into oceanography like my cousin'. Such comments are only anecdotal for stimulated curiosity or raised awareness, but they provided a dipstick test for the achievement of those engagement goals through our media interactions.

4. We sought testimonials from journalists and producers to highlight the significance and outcomes of our interactions from the perspective of media professionals. For example: 'I am always impressed by Dr Copley and his team's attitude to the media and public engagement. They go out of their way to make sure the public can find out about the exciting and important work they are doing – and as you can see from the statistics, there is a real appetite out there for finding out about this area of research' (Science reporter, BBC World Service); 'One senior editor described our live shot, broadcast on the flagship *News At Ten*, of the ROV's [remotely operated underwater vehicle] cameras beside a vent system, as one of the most riveting television moments for many years ... Overall, this was one of the best examples I have ever known of cooperation from scientists' (Science editor, BBC News).
5. We encouraged media outlets to include links to our own online engagement resources where possible in their coverage of our research, and we were able to track increased traffic to those resources from media reports, as evidence of 'generating interest and curiosity' among audiences. During fieldwork aboard a research ship on 10 April 2010, we saw a spike of more than 20,000 new visitors to our expedition blog pages (see Figure 3A), with the majority arriving from the link in a Yahoo! News article reporting our discovery of the world's deepest known hydrothermal vents. Similarly, on 22 February 2013, the volume of traffic from BBC news coverage to a blog post about our research on the website of the Natural Environment Research Council (NERC) temporarily crashed the research council's server (see Figure 3B).

Figure 3A: Examples of evidence for 'significance' of impact from engagement with traditional media, consistent with our specific goal of 'generating curiosity about science': data showing more than a hundred-fold increase in daily visitors to our own engagement website coincident with media coverage of our research on 12 March 2010

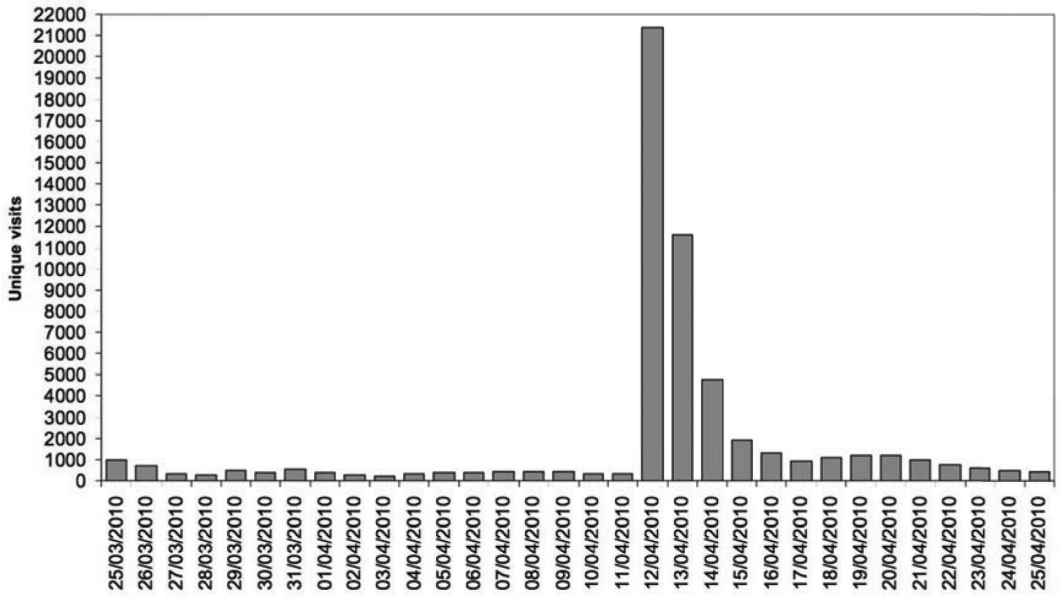


Figure 3B: Examples of evidence for 'significance' of impact from engagement with traditional media, consistent with our specific goal of 'generating curiosity about science': admission by our funder that their website was crashed by increased traffic to a background article about our research, resulting from BBC news coverage of our fieldwork in February 2013

Face-to-face engagement

During the REF period, our team members talked about our research to a total of more than 20,000 people at more than 80 events, targeting our four communities of place and interest. For 'local communities in the southern UK', events ranged from cafes scientifiques and talks at science festivals to activities at less traditional venues for research engagement, such as a 'guerrilla' science event at a department store and science at a music festival. To engage retirees/lifelong learners, we used established networks such as University of the Third Age and Probus (Professional Retired Business Association), which feature guest speakers at regular meetings of local chapters, as well as local science interest groups, such as natural history societies. Meanwhile, our engagement of users of the marine environment included staffed exhibits at the annual Southampton Boat Show.

For school students and teachers, we worked with 13 local schools through visits, talks and the first live video links to classrooms from a UK research ship at sea, supported by additional funding from NERC to increase the bandwidth of the ship's satellite internet link temporarily for this purpose. We developed a close relationship with one secondary comprehensive in particular, where we interacted with more than 1,100 students from pre-GCSE to A level during the REF period. We also contributed to continuing professional development events for teachers through the Prince's Teaching Institute, helping teachers to explore and develop classroom materials featuring our research.

Evidence for the reach of our face-to-face engagement activities came from recording audience numbers at events, and, where possible, demographic information about audiences that were relevant to our engagement goals (for example, proportions of audiences that were school students, or retirees). To demonstrate significance of impact, we compiled two forms of evidence:

1. We captured feedback comments from audiences in a variety of ways, some of which were more effective than others. These methods ranged from a roving video camera to record voluntary audience comments at a social event after a talk, to encouraging audiences to provide feedback via our online and social media presence. In all cases, the challenge was to provide a method with a low effort threshold for audience members, thereby enabling us to capture a more representative breadth of feedback, but also accommodating depth of feedback where individuals wished to provide it.

   The examples of feedback that we collected and presented for the REF were inevitably anecdotal, but consistent with our engagement goals of 'generating inspiration and curiosity' about our research, and 'raising awareness of our research

insights'. Comments included: 'We're all dying to go down there now, and see what's actually there'; 'I came home and spent hours Googling hydrothermal vents'; and 'I now have two children wanting to be marine biologists'.

2. We also sought testimonials from staff at the schools with which we worked, to gain their perspectives of the specific benefits of our engagement activities. These ranged from reporting impacts on interest in science among students, such as 'Sixth form students have secured places to study marine biology and oceanography in increasing numbers year on year', to use of our research to illustrate the curriculum, such as 'His work and ideas have inspired me and many other teachers to include more contemporary science and ocean research examples in our day-to-day teaching'.

Online engagement

Evidence for reach of impact was easiest to quantify for our online engagement activities, in the form of traffic data to our web resources. Our core engagement website was hosted by a commercial internet service provider that delivered detailed data on visitors, including the country from which they accessed the website and the types of device and operating system that they used. During 40 months from launching our core site in March 2010 to preparing our REF submission in August 2013, our expedition web pages received more than 279,000 visitors from at least 90 countries.

Simply reporting visitor numbers to a science website lacks context, however, so we compared our traffic (nearly 7,000 visitors per month on average) with data for the UK government's national Science: So What? engagement web pages (just over 9,000 visitors per month; Lammy, 2010) to convey the reach of our core web presence in the context of nationally funded online engagement with science.

YouTube similarly provided data on viewers of our video content, totalling more than 175,000 views during the REF period, with visitors from every region of the globe defined by the website's tracking service. To demonstrate the reach of our engagement activity on Twitter, we used tweetreach.com to track the hashtag #deepestvents for one of our fieldwork expeditions. Tracking of that hashtag showed that 5,977 people shared our online resources with their networks, or used the hashtag to ask us questions or comment about our work.

Evidence for significance of impact from our online engagement activities was provided by:

1. Audiences sharing our web resources, which represents a behavioural response consistent with 'raising awareness of our research findings and their context' and 'generating inspiration and curiosity' about our science. Several other YouTube accounts featured our video footage, representing follow-on interest similar to that used to demonstrate significance in our media engagement. These additional channels took the total number of views of YouTube video generated by our research to more than 690,000.
2. Audience comments captured by the interactive element of our core engagement website, and from social media interaction. Comments included 'Fascinating and awe-inspiring read'; 'This is the coolest expedition and surely the best ever website for communicating science news to the public'; 'This Boomer on Long Island (NY) will think far beyond the surf on next visit to the Fire Island lighthouse'. All of these are consistent with our engagement goals of 'generating inspiration and curiosity about science' and 'raising public awareness of our research insights'.

Discussion

In addition to helping to determine the QR funding outcome for our institution, our Impact Case Study prompted us to focus our existing engagement activities on a more coherent programme, with clearer goals and target audiences, and extend those activities much further during the REF period. It also increased our awareness of the need to plan and incorporate effective evaluations in our activities. Although not all the evaluation methods that we tried were equally effective, we are now working to improve this aspect for the future, recognizing the benefits of collaboration with social scientists and evaluation professionals.

Our interactions with audiences also gave us new insights into the wider social contexts of our research. The questions asked and angles pursued by journalists represented the different interests of their audiences, and helped us to refine the framing of our work to engage different constituencies (Nisbet, 2009). Meanwhile, discussing our work with retirees and lifelong learners in particular gave us broader perspectives on our research than we usually receive in peer feedback from fellow specialists, enabling us to crowdsource the wider experience and perspectives of people with backgrounds ranging from law to engineering.

An additional benefit worth highlighting was a boost to morale among research team members from public engagement. Comments and feedback that we received from audiences were overwhelmingly positive, with people appreciating the opportunity to share in our work and talk to us about it, and very little moderation was required for online comments posted to our core engagement website. The expression of public support for our work often refreshed our determination for pursuing our research, helping to offset the psychological pressures that researchers face from setbacks when attempting to obtain funding and publish findings in highly selective journals.

Having integrated an engagement programme with our research, we have continued to run that programme since the REF2014 submission, refining it further as our research progresses and introducing new innovations and partnerships to deliver impact in the next REF period. Preparing a REF Impact Case Study based exclusively on public engagement has also helped to increase recognition of such activities at an institutional level, with invitations to share experience across academic departments and inclusion of our work in university promotional materials. We have also experienced increased support for the development of further engagement activities, having been able to demonstrate the potential of public engagement to help determine QR funding outcomes.

But what was the assessment score for this Impact Case Study? HEFCE's policy for REF2014 was not to release scores for individual Impact Case Studies or research outputs. HEFCE did publish overall profiles of scores for each REF submission, for example summarizing how many Impact Case Studies in a particular submission were 4*, 3* and so on. From this it is possible to deduce scores for some individual Impact Case Studies, if they all scored the same within a submission. The ability to deduce scores for some Impact Case Studies but not others does not represent an equal process for researchers to receive feedback about their REF contributions.

For this Impact Case Study, we can deduce that it was either 4*, 3* or unclassified from the profile of scores for the submission in which it was included. As is often the case in academia, however, a network of contacts means that I am unofficially aware of the actual score (and I would not be sharing my experience if it were not worthwhile). But the reality of such networks and informal communication similarly does not represent a fair process for researchers to obtain information about their submissions.

Because I am identified by name in the Impact Case Study, then under Section 7 of The Data Protection Act 1998, I have the right to view the information that HEFCE holds in relation to me, which would include the assessment score for this Impact Case Study. The successor to HEFCE administering the REF2021 may therefore wish to reconsider the policy of not releasing assessment scores for Impact Case Studies or research outputs, or face the administrative risk of having to respond to potentially thousands of valid and non-vexatious requests from individual researchers for information that it holds in relation to them.

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Notes on the contributor

Jon Copley is Associate Professor in Ocean Exploration and Public Engagement (part-time) at the University of Southampton, and co-founder and Director of SciConnect Ltd. His awards for public engagement with his research include the Royal Society of Biology Science Communication Award for Established Researchers and the British Science Association Charles Lyell Lecture Award. He is also a former full-time science journalist (previously a reporter and assistant news editor of *New Scientist* magazine), and was a science advisor for the BBC's *Blue Planet II* series.

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