MarBEF Communications & Outreach

Communicating science to the public

By Róisín Nash and Chris Emblow

Engaging public audiences with science is not a business proposition. However, following on from the success of the European Platform for Biodiversity Research Strategy (EPBRS) online conference, where an assortment of insightful contributions was put forward, we would like to highlight just how important scientific outreach is for engaging the non-specialist public and ensuring that they are better informed about science and technology.

One of the principal issues to demonstrate is the relevance of science to everyday life – and the potential benefits of scientific research to every individual. With policy-makers high on the list of our most important audiences, science communication needs to be placed higher on our agenda.

Opportunities for outreach

It's a new world, particularly for teachers and those involved in outreach education, as e-teaching starts to take the world by storm. Teachers have already experienced a paradigm shift where they are now struggling to translate what they have been teaching in the classroom into the language of the web. E-teaching involves using online tools to support student learning. Websites, in particular, are being used, as they can be updated rapidly with new material which may not have been published elsewhere. We encourage our RMPs to use both their individual web pages and the outreach pages on MarBEF for public outreach.

So, where do the barriers lie?

Most researchers would agree that the need to spend time on their research prevents them from becoming more engaged. However, a surprising result of a survey carried out by the BA in Britain uncovered a stigma associated with public engagement activity, and that outreach is not encouraged while pursuing a career in research. Even more importantly, public engagement does not bring in significant funding and is therefore not a high priority for universities.

Most scientists who are involved in scientific outreach have never had any formal media, communications or public engagement training. With web-based communication technology advancing so rapidly, it is no surprise that, for many, the mere mention of podcasting or YouTube as tools for e-learning or public engagement draws blank expressions.

With a few basic guidelines, it is simple to turn a scientific research paper into an educational outreach tool for e-teaching, with the potential to incite public debate. Break down your scientific paper into an outreach newsletter or a presentation with simple and visually attractive components to engage the public:

First Step: Strip your paper of references.

Introduction: Explain in popular English your item/area of study. If you are studying a particular animal, tell your audience exactly what it is, what it is related to and where you would find it. Use pictures and facts to help portray the animal.

Hypothesis: Give some background on what has been done in your area of study and why you decided on your research. Perhaps you were hoping to show that the geographic range of an animal had expanded – or the opposite: that its numbers had declined to such low levels that it was causing concern and you wanted to find out what the cause of its decline was.

Materials & Methods: This can be one of the more difficult areas to explain to the non-specialist reader. You may decide not to include it in your outreach. However, if you do, I recommend that you strip it down to its bare essentials, giving step-by-step information. Where possible, compare the process to an everyday process. For example, everyday products (washing-up liquid, salt, pineapple juice, aftershave) have been used to demonstrate how to extract DNA from an onion. If you have video footage of sampling procedures, etc, these can be used.

Results: Make sure to use colourful visual aids and deliver your results in a simplified manner, reducing or removing the amount of statistics applied. Show the overall picture as well as the individual components.

Discussion: Rather than trying to compare your results to previous studies, try to relate these to everyday life and how the information will benefit the reader. It may simply be about getting across to the reader the potential enjoyment and excitement involved in doing science.

The success of your outreach, like many great ideas, will reflect its simplicity. Your graphs and pictures will all become visual teaching resources that can be reused for a number of purposes. Over a short period, you will gather more teaching and outreach resources that will make your next outreach venture less time-consuming.

One skill that comes with experience is learning to pitch your outreach at the correct level for your audience. If you overestimate or underestimate the knowledge of your audience, you will immediately start to lose their attention. An area for concern, however, is that some scientists see the main reason for engaging with the public as the need to 'educate' them rather than to debate, listen and learn as part of a genuine dialogue.

At the outreach office, we are eager to start turning the results produced from a number of RMPS – including MarFISH, Manuela, PROPE-taxon ArctEco and MarPace – into outreach materials, while also building a supply of educational resources that can be used for both public and educational outreach. So, keep an eye on both the outreach pages and the RMP pages for further updates.

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Out and About – with Outreach

Integration is one of the key elements of MarBEF and is continually highlighted in scientific integration throughout this newsletter.

Here is a successful story of outreach integration between MarBEF and a number of organisations – namely MarLIN, HERMES and the European Census of Marine Life. The outreach officers from each of these organisations came together one year ago to investigate the possibilities of

joining forces and arranging an educational outreach exhibit under the banner of marine biodiversity.

The chosen location was York in the UK, and the occasion was the BA (British Association) Festival of Science in September. Here, we introduced students from 5 to 18 years of age to the variety of marine life in the oceans, from the deep seas to the seashore.

Several of the students took up the

challenge to enter a quiz where they would have to decide whether a number of different plants or animals were winners or losers as a result of a number of different human activities, including climate change, dredging, litter and fishing.

Some 8,000 students visited the festival over the five-day period and we received a very positive response from both the students and their teachers on our interactive exhibit and the educational outreach

provided. This, we hope, is only the start of a very successful collaboration resulting in many more future outreach ventures.

MarBEF was showcased in the European Commission's stand at the prestigious Oceans '07 Conference in June 2007, in Aberdeen, Scotland, where a Power Point presentation on the MarBEF network was on show during the event.

Róisín Nash

MarBEF Progress

MarBEF Data Management

The European Marine Gazetteer
– its development and applications

The Global Oceanic Boundaries on Google Earth. The KML files are derived from the EEZ boundary data provided by the Flanders Marine Institute (VLIZ). The data were converted to Google Earth KML by Price Collins of Alphabet Systems LLC, USA.

By Simon Claus, Ward Appletans, Bart Vanhoorne, Nathalie De Hauwere, Francisco Hernandez and Jan Mees

Geographic Information Systems have become indispensable tools in managing and displaying marine biodiversity data. Within MarBEF, we have developed a standardised register of place names, called the *European Marine Gazetteer.*

The word 'gazetteer' goes back to the Latin word *gazetta* and can be defined as a geographical dictionary. There are several good international, internet-accessible gazetteers for the terrestrial environment, but no such system has existed for the seas and oceans. With the creation of the *European Marine Gazetteer* we have laid the foundations for such a system. The ultimate goal is to have a hierarchical

standard list that includes all the marine geographical names of Europe, and of other areas in the world where European marine scientists have taken samples.

At the moment, the gazetteer covers all the names that are in use by the MarBEF network as geographical key-words for the description of, for example, datasets and publications. The

list, as of September 2007, has 946 records, including names of seas, islands, sandbanks, ridges, estuaries, bays, sea-mount chains, submarine lava tubes and standard sampling stations that are used in the different MarBEF data systems. Besides the name and place type, the following geographical features are attached to each record: minimum and maximum latitude and longitude, precision (defined as the radius of the circle corresponding to the geographic shapefile), sources of information, the relationships (parent-child, adjacent to, streams through, rises and flows out) with other place names