I wanted to better understand which of my education and outreach activities were most effective. Accordingly, I sought to develop a framework for such an assessment by creating a list of “quantifiable” metrics, including A) the scale of the program (the number of students or individuals to whom these efforts were directed); B) the effort required by me and/or my lab members (time required to prepare the materials); C) the extent and accessibility of documentation after the event (activities whose content can be accessed online, and the degree of effort required to access those materials); D) participation by those traditionally underrepresented in science; and E) the personal satisfaction specifically resulting from preparation for the event. I ranked each of these metrics on a numerical scale, and used these data to generate an efficacy score (Figure 1). I define efficacy as the likelihood that the effort would produce a lasting effect, beyond the original event.

What I found was that my efforts required varying degrees of personal investment, had widely varying degrees of impact, and, accordingly, varying degrees of efficacy (Figure 1). The results (found online at cosee.umaine.edu/pgirguis) helped me realize which activities were most effective. Equally important, this effort helped identify those that were most personally satisfying, which I would suggest is a valuable consideration because it is likely that one will produce a better product (the outreach activity) if it is more pleasurable.

I was also struck by the efficacy of partnering with national organizations, like COSEE, wherein I could work...
with professionals to develop my content while receiving valuable feedback. Key to the success of these endeavors is the collection and analysis of evaluation data, enabling principal investigators to refine their presentation styles and content levels to improve future E/O efforts. Such interactions ensure that the outcomes are grounded in appropriate educational practices.

Principal investigators are continually faced with the daunting task of running their labs, participating in community service, and leading E/O efforts. Investing energy in a self-assessment of E/O activities provides an opportunity to better prioritize one’s commitments, and partnering with E/O experts can help principal investigators make best use of their most valuable resource—time.

ACKNOWLEDGEMENTS

This work was written by Peter R. Girguis, with contributions and support from A. deCharon and C.M. Herren. Support for this effort was provided by the National Science Foundation (OCE-1061934, OCE-0838107).

Peter R. Girguis, Ph.D. is a John Loeb Associate Professor of Natural Sciences at Harvard University, Dept. of Organismic and Evolutionary Biology. He is a graduate of UCLA and UC Santa Barbara. His research focuses on understanding how and to what extent marine microbes influence ocean chemistry.

Annette deCharon is the COSEE-OS director and PI at the University of Maine, School of Marine Sciences, Darling Marine Center. She is a graduate of UC Davis and the Oregon State University, and is also the education manager for NASA’s Aquarius satellite.

Christen M. Herren, Ph.D. is a Research Associate and Web Strategist in Marine Education Science at the University of Maine, School of Marine Sciences, Darling Marine Center. She is a graduate of the University of South Carolina and UC Santa Barbara.