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Zoticus's travels also include the Antarctic ice shelf, the Great Barrier Reef, and the shipwreck *Atrólabe*, which is accompanied by a world map of important shipwrecks and estimated dates of sinking: Viking ships (1080), *Mary Rose* (1545), *Santa Margarita* & *Nuestra Señora de Atocha* (1622), *Merchant Royal* (1641), *HMS Pandora* (1791), and S.S. *Central America* (1857). The publisher carefully yet inconspicuously notes that there are several notable shipwrecks missing from this map as they occurred after the date of this journal. It notes *Titanic's* sinking in 1912 and its discovery in 1985, and *Lusitania*, sunk as a victim of World War I and discovered in 1935.

Topics covered also include an underwater volcano and plate boundaries

described by the voyage's marine geologist, Professor Maurice Ewing. The publisher notes: "The theory that the Earth's surface is made up of moving plates was not properly developed until the 1960s. The fact that Ewing describes the idea here is truly remarkable. We must conclude that he was able to develop theories that were startlingly ahead of their time as a result of his exposure to undersea wonders that had never before been witnessed by scientists of his time."

There is a "Web of Life" drawing and a booklet on "Charles Darwin and the Origin of the Species" with a drawing of *HMS Beagle* (1831–1836) and notes on "Darwin in the Galápagos," and "Evolution and Natural Selection." The importance and intrigue of biological

and geological collections and reference samples are honored throughout the book. The voyage ends with a visit to "the vast sunken city" Atlantis—and Poseidon's curse.

This book is a tribute both to Jules Verne, the pioneer of the science fiction genre, and to what we know today about our ocean.

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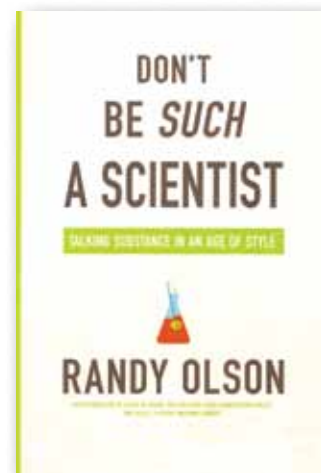
Don't Be Such a Scientist: Talking Substance In An Age of Style

By Randy Olson, Island Press, 2009,
206 pages, ISBN 978-159726-563-8,
Softcover, \$19.95 US

REVIEWED BY JONATHAN H. SHARP

The number of Americans who believe [sic] that our climate is changing has dropped 20 percentage points to 57% in the past two years. This figure should be a clarion call that we, as environmental scientists, are not effectively communicating with the public. Here is a book that addresses the problem with excellent suggestions on how to improve our communication skills. The book might be viewed by some established ocean

scientists as overly critical of them and supportive of our students becoming inaccurate emotional environmental advocates. This should not be the case. Over the past two decades, I have seen increasing numbers of prospective graduate students who were passionate about environmental problems and wanted to "save the world." In our traditional academic training, we tend to squelch this passion in favor of developing quiet, objective, incremental researchers. In the end, our trainees become like us; if they speak out in public at all, it is with guarded, qualified statements. They appear to the more cynical public to be boring "talking heads."



The author of *Don't Be Such a Scientist*, Randy Olson, is a scientist who abandoned an academic career to pursue a new one in professional filmmaking. After earning his PhD in evolutionary biology at Harvard, he advanced to a tenured marine biology faculty position at the University of New Hampshire.

He left that position in his late thirties to enter film school at the University of Southern California. Since then, he has been struggling as an independent filmmaker, making short and feature-length films about evolutionary and environmental sciences for broad public consumption. His neat, short documentary videos in the Shifting Baselines Ocean Media Project are concise, factually accurate vignettes about abuse and overexploitation of the ocean. His feature film *Flock of Dodos*, aptly subtitled *The Evolution-Intelligent Design Circus*, pokes fun at the lack of science in the intelligent design approach, but also at staid, pompous evolutionary scientists. He describes his recent feature film *Sizzle* as a mockumentary about making a documentary film about climate change. I found both films to be entertaining and informative. His short videos and feature films use humor and popular appeal to present solid scientific information.

A major theme of this book is that while scientists speaking in public must, of course, maintain accuracy and objectivity, they fail to communicate to the larger audience that needs to hear them unless they quit being boring. A quote that I like from the introductory chapter is:

The time has come, in our new media environment, which is so cluttered with information that it is at times hard to tell fact from fiction, for new attention to be paid to this second type of error. The powerful and effective communication of science has to be a much higher priority than ever or the science community will lose its voice, drowned out by either the new anti-science movement or just the cacophony of society's noise.

That “second error” is boredom. Olson refers to a traditional scientist’s response to a tedious, boring presentation by a colleague as shrugging it off with the claim that at least the speaker got the facts right and hence no harm was done. He claims that great harm *is* done: it is a total failure to communicate. Throughout the book, he also indicates that this error of boredom helps create an image of scientists that makes the public dismiss and ignore them.

So, what does Randy Olson want us to do? His objective is not to convert a few passionate, articulate young scientists to quit research and go to Hollywood. He suggests that a large portion of our profession make a concerted effort to communicate more effectively with the public, and then gives some valuable pointers on how to do it. He constantly stresses that we do not want to “dumb down” the science and that we must be meticulous in keeping accuracy in our messages. In fact, his “first error” in presenting to the public is inaccuracy. However, we can learn how to make our messages more interesting, more entertaining, and thus, more compelling while still being accurate.

The book has five chapters, the first four with titles starting “Don’t be..”: 1. So Cerebral, 2. So Literal Minded, 3. Such a Poor Storyteller, and 4. So Unlikable. The fifth chapter title instructs what to be: Be the Voice of Science. Throughout, Olson analyzes what he views as common poor communication activities with positive suggestions on how to improve. As a central point, he describes the “objective/subjective divide”: science has the objective side of doing and the subjective side of communicating, with the further division of communicating having the objective

side of substance and the subjective side of style. Even if one’s presentation has great substance, style is needed to get the audience to grasp the substance.

In discussing scientists competing with naysayers to inform the public, he points out that scientists carefully deliver facts. On the other hand, by using emotion and “facts” that are not accurate, the other side succeeds in undermining the scientists’ messages. Many of us have observed this phenomenon. Unfortunately, too often our response is one of disgust for the “charlatans,” as opposed to recognition of our own failure. The message of his last chapter, and a theme throughout the book, is that most scientists should make the effort to become better storytellers. You do not need abandon or water down the substance, rather you need to add style to the substance and be concerned with the story line in public presentations.

Olson relays what he learned from his acting classes about the dichotomy of “arouse and fulfill” (motivate and educate). An actor must first capture the attention of those in an audience, and then fulfill them with the performance. In a similar fashion, a science communicator must motivate the members of an audience and then educate them. In our typical academic presentation format, we generally assume that we are dealing with a pre-aroused audience and can go directly to the fulfill mode. In public presentations, we must first be concerned with motivation: “Why should the public be interested in our message?” He states that scientists usually fail to motivate, but he also points out that well-intentioned Hollywood environmentalists who do motivate often fail to educate. With interesting anecdotes, he suggests that

we need to both motivate *and* educate.

With the modern technological world of Facebook and blogs, Olson suggests that the younger generation of scientists is, and should be, familiar with videos. Probably more and more scientists are beginning to make short videos and post them on their Web pages. This is a potential avenue of expanded communication, both in the mode and in the type of short, interesting message required for presentation. He suggests that we need to move on to using blogs and other voluntary avenues to get our messages out. Olson has been developing and conducting workshops for scientists, including a regular one on communication at Scripps Institution of Oceanography.

Throughout the book, Olson uses interesting anecdotes that describe his transition from research scientist to professional entertainer, and also interesting stories about events and approaches in his filmmaking. Some readers might find his autobiographical approach too personal, but it is effective partially because of his humility. He is very critical of the poor communication success of scientists and most often

pokes fun at himself as an example of what is wrong with the typical scientist's approach. The tone of the book is not "what *you* are doing wrong," it is "what *we* are doing wrong." In the end, he acknowledges that he can't completely quit being a scientist and that he loved his former profession (with the exception of writing grant proposals). He writes as a scientist who loves scientific research, but who is more interested now in mass communication.

This book is well written and interesting. More importantly, it has a compelling message for the scientific community. If you, as an environmental scientist, feel that public perception of and interest in the environment are fine and that people generally are getting good, accurate information, then skip this book. I think that most ocean scientists do not think that everything is going fine. To them, I strongly recommend this book.

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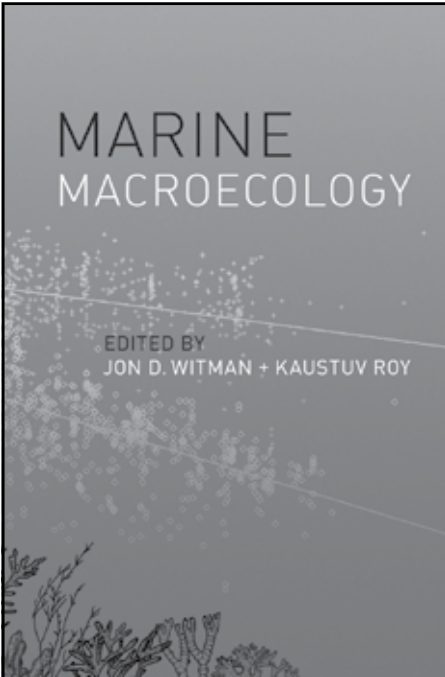
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