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### The Moral Obligations of Scientists

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To advocate, or not to advocate? That question is one of the most basic ethical dilemmas facing environmental scientists today, and the answer can embody a scientist's relationship with society and nature.

After nearly a century of consideration, the issue of whether scientists should disseminate and explain their research, and aim to influence public policy, still fuels heated dispute. The debate in general seems at a permanent impasse. The various arguments for and against advocacy span dozens of scholarly papers. Many of those involved speak past one another, portraying recycled assertions as novel logic, often without acknowledging equally familiar counterarguments. In May 2009, the journal *Conservation Biology* published our extended treatment of the topic, "On Advocacy by Environmental Scientists: What, Whether, Why, and How." For the better part of a year, we studied dozens of papers and critiqued the strengths and weaknesses of each stance for or against advocacy. Defining advocacy as "promoting, developing, or assessing policy positions beyond merely conducting research and communicating results through primarily scientific venues," we found that most positions about advocacy boil down to just a few classes of formal arguments.

We also discovered that every argument against advocacy was found wanting. Specifically:

**Advocacy could hurt the credibility of science or scientists.** Long before she knew the legacy of her work, even the pioneering environmentalist and biologist Rachel Carson endured organized attempts by the chemical industry to harm her credibility. But significant and unjustified damage to one's scientific credibility appears exceptional. The risk, however, is real enough that a scientist would be wise to advocate strategically, but

rare enough that a scientist is not justified in refraining from advocacy for fear of damaging his or her credibility.

**Time spent on advocacy takes away from time spent on productive research.** We never found a published paper expressing such a banal sentiment, but we suspect that all too often, this suspicion lurks just beneath the surface. Although it can be challenging, we know how to handle conflicting moral commitments, such as being a productive scientist and an engaged spouse—we just sometimes choose to do otherwise. The challenge of time management is not an adequate excuse.

**Science and advocacy are philosophically incompatible.** That premise appears in various forms. For example: "The purpose of science is to assess fundamentally objective phenomena, and because advocacy is about the assessment of normative phenomena, scientists should not be advocates." Other versions assert that advocacy differs from science because science's purpose is to remain neutral and impartial—to provide facts or information, not policy advice, and to only draw conclusions with a relatively high degree of certainty. Several dozens of papers have been written along those lines in the past two decades, and all of them mischaracterize science and fail to distinguish science from scientists. The fact that science is primarily about assessing empirical propositions does not preclude a scientist, who is also an intelligent human, from assessing normative propositions.

But the failure of these three main arguments against advocacy does not create a successful one in favor of it. That is a separate task.

A few general schools of thought support advocacy:

**Science and advocacy are fundamentally similar.** A popular premise is that advocacy by scientists is acceptable, even inevitable, because science itself is inherently value-laden. In choosing which project to pursue, which methods to employ, and how to interpret the results of research, scientists regularly make—indeed, they cannot avoid—value judgments. Although we are wise to acknowledge the value of science, we commit the fallacy of composition if we assume that policy advocacy by scientists is justified merely on that basis alone. Moreover, while advocating for

the objective analysis of empirical phenomena (i.e., for science) or for clear and rational thought (i.e., for reason) is uncontroversial in all but the most extreme arenas, it is also distinct from advocating for a given policy.

**Scientists are obligated to speak out against major dangers to society, like climate change.** Under certain extreme circumstances, this argument goes, it is reasonable to expect scientists to be advocates. While a legitimate stance, such a justification arbitrarily limits the role of science advocacy to extreme situations. If such advocacy were justified on the basis of averting societal harms, then less pressing but still important societal concerns would also allow for advocacy by scientists.

Scientists have a moral obligation first to be good citizens, second to be good scholars, and third to be good scientists. The most powerful argument we could find in favor of advocacy holds that good citizens in democracies have a moral obligation to advocate to the best of their ability in the interest of helping society.

It is true that some tension exists between advocacy and certain aspects of science. Narrowly construed, science focuses on the assessment of empirical claims, while advocacy focuses on the assessment of policy positions that transcend only-empirical claims. And yes, being an effective advocate probably will take away from time that you might otherwise spend working in the lab, writing papers, or mentoring graduate students.

Still, the commitments to society override one's commitments to science. When scientists reject advocacy as a principle, they reject a fundamental aspect of their citizenship. Because of the nature and depth of their knowledge, they have a special responsibility. It is a perversion of democracy to muffle the voice of the most knowledgeable among us and consequently amplify the voice of those with the greatest ignorance. Silencing scientists who wish to be honest and open advocates promotes mob rule by special interests. Although some might think that scientists have inadequate breadth of knowledge to appropriately engage in advocacy—that only policy makers and managers should enjoy such a privilege—that logic would exclude virtually every citizen from advocacy, a prospect as absurd as it is dangerous.

Surviving in today's research-industrial complex makes it easy to forget that we are scholars first and scientists second. While scientists are committed to objective empiricism, scholars are committed to the rational assessment of ideas. That commitment to rationality implies—indeed, demands—a commitment to advocacy. Broad participation by scientists in advocacy will very likely make for a messy, complicated world. That complexity is justified if the goal is the betterment of society. It is time to stop discussing whether scientists should be advocates and move on to the difficult business of learning how to do so wisely.

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