When I first met my husband, I belittled his science. I was a toxicologist, studying the impacts of coastal pollution on our beloved winter flounder. He was an ecologist, studying, as far as I could tell, minnow poop.
"Why would anyone do that? Who cares about what goes in and out of minnows?" I was high on my applied science horse. I thought my science meant something. Toxicology of marine creatures laid the foundation for all those "end of the pipe" regulations - what was allowed to flow out of industrial and municipal pipes. Maybe my research would help to show just how ineffective many of these regulations had been over the past few decades -- how we could do better.

But how fast a minnow could grow on a diet of even smaller sea creatures? Really?

I was wrong, of course. Toxicology would not exist if generations of curious scientists had not wondered what made a heart beat, or stop beating, or detailed the development of a killifish embryo from a bundle of cells to slender, translucent larvae, or had they not spent decades just getting to know the proteins our bodies produce and how some can transform toxic chemicals into harmless metabolites that we can eliminate.

What my husband-to-be (thankfully my pompous dismissal of his research didn't turn him away) studied was far removed from any rapid application. His research would not solve any coastal or
fisheries problem. But it would become research that he continued in one form or another for the past thirty years. How fish grow, the food they eat, the temperature they prefer may bit upon bit contribute to how we understand and approach our rapidly changing environment.

While I had climbed aboard the "applied" train, scientists like my husband continued laying the foundation for people like me. That was thirty years ago, and even as this apparent applied-basic science split has begun to erode over the years (with technologies that increase flow from one to the other) young scientists pursuing the wonders of say, butterfly wings, or who seek genes that control the pinks and blues of a flower petal continue to bump up against the "so what" question. "I love what I do," lamented one young scientist over her soba noodles at a recent meeting, "but it's so far removed from any application. How do I rationalize it to anyone who asks what's the importance?"

While no one in the sciences would suggest we turn away from the basic sciences, funding agencies are increasingly demanding results. One outcome is a focus on "translational" science - science aimed at turning basic science into something that will benefit our health and well being; or putting basic science to use. Sounds good. Why not focus on turning basic research findings into something more immediately useful? We need this kind of focus. But, we need to support our basic sciences as well. As a recent article (http://science.sciencemag.org/content/355/6324/477) in Science Magazine points out, "A troubling trend...is the nearly annual declaration by a Nobel laureate that their biggest discovery would not have been possible in today's research environment." There is, as the article points out, an emphasis on "predictable discoveries over unexpected ones."

In a time when we are compelled to defend science more than ever, it is hard to defend the basics. Even as one list-serve of scientists bandied about potential messages for the upcoming March for Science, it was too easy to want to highlight the products: chemotherapies, cell phones, agricultural advances; lives extended and made easier thanks to science. But these are just bits of the scientific ice-berg that float into our lives. What we don't see is all the rest. The mounds of data below the surface. Like minnow poop.

So, if we want to move forward as a society, we need to support not just the science that obviously benefits us (whether directly or economically) but also the science that just is. The science that emerges from pure curiosity. This exploratory basic science is not a luxury. It is the fuel for a society that aspires to live better. In our fast-paced, short-term, gain-oriented world, we must continue to embrace the dreamers and the curious. Curiosity won't kill the cat, but might just save us all.

List of links present in page

- http://www.pro-test-deutschland.de/
- http://science.sciencemag.org/content/355/6324/477
- https://library.ias.edu/files/UsefulnessHarpers.pdf