## STORYTELLING

# The Next Frontier of Science

**Marika Schulhof**

What creates the gap between scientific findings and policymaking, and what can scientists do to increase public understanding and appreciation of science? At the 2018 Aquatic Sciences Meeting in Victoria, British Columbia, Dr. Adrienne Sponberg sought to answer these questions in her talk entitled "Making Science Matter in Policymaking." As a veteran of the worlds of academic research and policymaking in Washington D.C. and current Director of Communications and Science at the Association for the Sciences of Limnology and Oceanography, Sponberg had unique insights into the disconnect between academic research and decision-making and suggested actions that scientists can take to better communicate their findings to the general public and policymakers – first and foremost by humanizing their science through storytelling.

Consider a policy case study: Steller sea lion populations near Alaska declined precipitously in the late 1990s, coincident with increasing pollock catch by commercial fisheries. Environmental groups assumed that correlation was causation and sued the National Marine Fisheries Service, insisting that pollock fisheries were depriving sea lions of their primary food source and causing their populations to crash. This controversy led to a closure of the Alaskan cod fishery, valued at $1 billion. In response, Senator Ted Stevens of Alaska froze the federal budget until the controversy was settled, causing short-term economic and political upheaval. However, all of this controversy and conflict could have been avoided. Existing published scientific studies had already demonstrated that pollock was a low-quality food source for Steller sea lions, and thus was unlikely to have caused their population declines. This case study illustrates a common occurrence in Washington: policy decisions with large ecological and economic consequences made based on misleading data highlighted selectively by interest groups, rather than the best available science.

If good science is available, why are decision makers swayed more by interest groups than by rigorous scientific findings? Could a more informed public help elect more informed public officials? Sponberg highlighted another case study – climate change – to illustrate how scientists have failed to effectively communicate their findings in a way that results in a more informed public. Despite 98% consensus among scientists that climate change is occurring, there remains wide disagreement among policymakers and the general public about the validity of climate change. This is not due to the lack of public interest in science, as indicated by the widespread popularity of the TV show *The Big Bang Theory*, which ranks among the highest viewed television series in recent years. Hollywood has been more successful in popularizing science than scientists themselves – even climate change communication was most successfully achieved through Al Gore's documentary *An Inconvenient Truth*. Why does Hollywood succeed where scientists fail?

The answer is storytelling: the most powerful yet underutilized tool scientists have to communicate their findings. As the U.S. 2016 presidential election revealed, people are driven more by values than facts when they cast their votes. In order to combat attacks on the credibility of science and the spreading of misinformation by politicians, scientists must humanize science and appeal to people on a personal level in order to effectively inform broader audiences about relevant scientific issues such as climate change. Sponberg ended on a hopeful tone with the message that aquatic scientists have an advantage in connecting with audiences about their research because water is relatable to people globally. They should leverage this familiarity when discussing their research with broader audiences. In addition, because scientists have many demands on their time and few incentives to communicate beyond the academic realm, Sponberg suggested allocating grant money to partnerships with outreach professionals who can help scientists craft powerful stories about their findings. Scientists can also attend policy workshops aimed at training scientists on how to best advise policymakers on decisions given uncertainties in their data, such as using "if, then" statements to frame the likely consequences of policy measures based on existing data. Scientists have the power and responsibility to inspire enthusiasm, curiosity, and appreciation for the natural world. Thus, time spent communicating science to broader audiences is never wasted – an increased public connection with science may increase its societal value, leading to election of more informed public officials, and more importantly, inspiring the next generation of scientists who will continue to study important ecological issues.

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