

The attached evidently appeared in TNC's January 2007 email newsletter. The authors are both scientists with TNC

Losing our credibility? A must-read scientific essay

by Peter Kareiva

Conservationists risk a lot by overstating the death rattles of biodiversity and our ecosystems. This is a theme of a recent essay by Ray Hilborn, one of the world's most accomplished fisheries biologists. Hilborn takes many of our marine conservation heroes to task for lousy science, and inept analysis driven by an agenda of promoting marine protected areas and a doom-and-gloom message of "empty oceans." Of course, Ray can go a bit overboard - for instance, when interviewed by the Seattle Times about a recent paper predicting catastrophic fisheries declines (Worm et al. Science November 3, 2006), Ray remarked, "[their analysis] is just mind-boggling stupid" (http://seattletimes.nwsourc.com/html/localnews/2003340489_seafood03m.html)

. But Ray has a point, and his point has merit. Conservation science too often slips into an "agenda driven" mode. I have seen it in all fields of conservation, and I have done a little agenda promoting myself when writing papers. Going too far in the opposite direction - bland analyses that do not speak clearly to issues people care about for fear of seeming like an "advocate" - is just as undesirable. We can strike the balance we need by structuring our work so that analysis and data selection is fair and rigorous - NOT agenda-driven - but allowing ourselves a little license for "agendas" in the discussion portion of our papers. I realize this is a fine line to tread. In any event, this 2-page essay is a must read for TNC senior managers and not just scientists. It makes clear why our organization must have some internal science talent to wade through the claims and debates that flood us regarding the collapse of our planet.

Is sound-bit science sound science?

by Mike Beck

TNC loves to see its science covered in The New York Times or other mass media, and most scientists have similar feelings. But to get "science" picked up by the media, it usually has to be simple, dramatic, and dangerously simplified. I ask here: Is soundbite science, sound science? and secondly Is soundbite science, sound advocacy? This essay was sparked by the recent Worm et al. 2006 paper¹ and subsequent press frenzy as well as criticism by Hilborn of the science in similar publications (see Kareiva review).

Worm mistakenly sent an email to The Seattle Times² in which he remarked that the manuscript included a news hook for the media - the prediction of global fisheries collapse by 2048. This prediction was not a central point of the paper (it was stated parenthetically) and was derived by Worm and others. 2006. Impacts of biodiversity loss on ocean ecosystem services. Science 314:787-790. 2

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The science chronicles from a simplistic extrapolation that would get you an "F" in high school statistics. But Worm was right, it was the hook that ignited news outlets globally; almost no one commented on (or as far as I could tell even read) the rest of their paper.

Many of my colleagues have suggested that any marine publicity is good for marine conservation. I think we should aspire to better. As Hilborn notes, in the past 10-15 years Science and Nature have published many papers on one subject, fisheries collapse. For Science, this may represent the largest

category of their publications in marine ecology. These articles have garnered significant press attention, with substantial advocacy contributions from the authors. I think we should care, and be cognizant of the fact, that this represents targeted advocacy by some scientific journals and authors:

1. It creates the appearance that fishing is the overwhelming threat to marine diversity. Issues such as loss of coastal habitats and declines in water quality are likely much more pressing threats to marine diversity in many places. It is difficult to get the marine conservation community to address these issues cohesively when they are not the issues that garner press attention.
2. This single-minded focus on over-fishing hurts our ability to partner with fishing interests to address conservation issues of mutual concern. We have much in common; the goal of abundant, large, wild fish. There should be plenty of opportunity to work together in powerful coalitions to address the problems in #1 and even to address fishing issues together. Instead of cooperation, there is polarization, which is fueled by one-sided papers in Science and Nature.
3. Most of these papers offer doom-and-gloom prognostications with few solutions. They generate immediate interest, but ultimately fuel weariness and disbelief. Why should the public believe these predictions of population bombs, fisheries collapse, or loss of polar ice when scientists are engaged in a one-upmanship to get press with the most dreadful prediction?
4. The current science advocacy focuses on issues and places where there are problems; not where there are successes and opportunities. I see a lot more hope for more marine conservation than is indicated in these papers or relayed to the public.
5. The few solutions that are offered are simplistic, e.g., 'lets stop fishing in certain areas.' It is much more difficult to draw a connection between this science advocacy and the more difficult changes in human behavior, governance, markets or policy that will be required to robustly address the threats to marine diversity.
6. The credibility and power of science to motivate change is diminished when scientists become single-issue advocates.

So what should we do? I think four major science-based institutions need to hold themselves more accountable for their role in mixing science and advocacy:

- (i) major scientific journals: Hilborn has made good suggestions. To these I urge you to stop subscribing to journals until they publish papers more on their scientific merit than their advertising or political potential. I just dropped my subscription to Science in dismay.
- (ii) ecological think tanks such as NCEAS: NCEAS has fueled many of these 'big ideas' - meta-analytic papers suffused with advocacy (meanwhile we are suffering a loss in natural history and connection to the real world).
- (iii) major environmental foundations: Environmental foundations play growing roles in what scientists study. We should view the science that foundations support with the same healthy skepticism with which we view industry-supported science - the science can be good, but it often comes with an agenda.
- (iv) marine environmental ngos: Marine NGO's have not done a good job of addressing threats beyond fishing. Can we be moderately successful in conserving marine biodiversity if we do not broaden our horizons? I think not.

NOTE FROM KAREIVA ON ABOVE: The Worm et al. paper referred to by Mike Beck was the most popular article on the NSF website for all of 2006 across all

sciences. This is evidence that "sound-bite science" pays off in some regards, which is why Mike's discussion points are so important to consider.