



Aquaculture and the open-ended nature of scientific evidence

Author: **Nathan Young**

Aquaculture—the farming of ocean and fresh waters—is one of Canada's newest industries, and has the potential to increase food supply from the oceans. However, critics charge that it poses risks to human health, local communities, and the environment.

Traditionally, reliance on 'expert' knowledge has been one of the key mechanisms for understanding such trade-offs, and for informing public policies that strike a reasonable balance not just in aquaculture but also in many other industries. That said, scientific inquiry has, on the one hand, increasingly been subject to criticism by industry advocates, while on the other hand coming under more pressure to be engaged with the

general public—a public that is concerned about environmental and health issues.

This is particularly clear in the case of aquaculture where significant barriers exist between expert and local understanding of the sector, and where industry attempts to dampen controversy have in fact backfired. This is the message offered by Nathan Young of the University of Ottawa and Ralph Matthews of the University of British Columbia in their book **The Aquaculture Controversy in Canada: Activism, Policy, and Contested Science**, published by the University of British Columbia Press.

Their research examines the role of trust and communication in the science-driven ►



Blanket assertions that “aquaculture is safe” or “aquaculture is harmful” are not scientifically tenable, but serve rather to pre-empt engagement with non-scientists.

environmental controversies that surround aquaculture. Their analysis is based on a survey of aquaculture scientists and experts from multiple backgrounds (including university, government, industry, and environmental groups); interviews; transcripts from community-level meetings about aquaculture development; and analysis of strategic communications from industry and environmental non-government organizations.

The development of aquaculture in Canada reflects a quintessentially ‘scientific’ controversy: both the industry and government regulators rely heavily on the natural sciences to guide their actions, while environmental groups have sponsored and published scientific studies highlighting the risks and harms of aquaculture.

Young and Matthews show that conflict within the scientific community is creating a climate of mistrust between aquaculture’s supporters and opponents. This is hindering efforts to create a more inclusive dialogue with stakeholders and members

of the general public that might ultimately lead to improved environmental performance, and enhanced legitimacy for the industry.

Scientific inquiry normally proceeds incrementally, uncovering new questions even as it generates new knowledge. But activist both sides of the debate over the effects of economic development attempt to use scientific authority to close down discussion rather than open up new lines of inquiry.

Blanket assertions that “aquaculture is safe” or “aquaculture is harmful” are not scientifically tenable, but serve rather to pre-empt engagement with non-scientists. This not only disengages members of the general public, but also contributes to political polarization as some people consider the issue to be settled (either for or against the industry) while others are frustrated at the premature closing of the public sphere.

Professors Young and Matthews also show that the aquaculture industry’s desire to avoid controversy

has been counter-productive. To cite only one example, critics of aquaculture have long complained that high-density fish farms incubate diseases, and transfer them to fragile wild populations. While the industry has made improvements in managing disease outbreaks and transfer, fear of a public backlash has led some industry supporters to attack the credibility and motives of their critics. This strategy has backfired as the industry now appears recalcitrant, closed-minded, and self-absorbed despite major improvements in environmental performance.

The authors raise several concerns for both public and private sector decision-makers attempting to manage similar scientific controversies. While these conflicts typically involve disagreements over facts and other claims, it is important to avoid tit-for-tat exchanges that exclude non-scientists. The temptation to draw on the authority of science in order to close down debate must be avoided.

Both industry and government officials must build legitimacy through transparency, public inclusion, and meaningful action towards both compromise and better environmental performance.

Indeed, the lessons presented in *The Aquaculture Controversy in Canada* apply equally to other science-based controversies, including climate change, energy issues, and biotechnologies. Most notably, the major messages the authors draw have clear echoes in the so-called “climate gate” controversy in which 13 years of email correspondence between scientists at the Climatic Research Unit at the University of East Anglia were hacked and released to the media during the Copenhagen Climate Summit.

The claim that data were manipulated by the scientists and that their work was flawed became the focus of attention. Yet a recent public inquiry in the United Kingdom concluded that the rigour and honesty of the scrutinized scientists were not in doubt, but at the same time the inquiry raised questions about their openness and their response to reasonable requests for information.

The research by Young and Matthews makes a clear case for greater contact between scientific expertise and the general public, particularly in the interests of finding legitimate long-term solutions to complicated environmental and ethical problems. ■



Nathan Young is an Associate Professor in the Department of Sociology and Anthropology at the University of Ottawa. His research interests include environmental and economic sociology, political economy, natural resources, economic globalization, as well as the sociology of science and knowledge.

He can be reached via email at Nathan.Young@uottawa.ca. For more information on how to obtain this publication, visit the University of British Columbia Press web page at http://www.ubcpress.ca/search/title_book.asp?BookID=299173157.

Nathan Young and Ralph Matthews (2010). *The Aquaculture Controversy in Canada: Activism, Policy, and Contested Science*. Vancouver: UBC Press. 289 pages.