

COMMENTARY

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Transcribed from Conference Expert Panel 15 May 2008.

SCHEUHAMMER, A. M. 2009. Commentary. In R. T. Watson, M. Fuller, M. Pokras, and W. G. Hunt (Eds.). *Ingestion of Lead from Spent Ammunition: Implications for Wildlife and Humans*. The Peregrine Fund, Boise, Idaho, USA. DOI 10.4080/ilsa.2009.0318

Key words: Ammunition, lead, health, hunting, non-lead, science, stakeholders.

I WOULD LIKE TO THANK The Peregrine Fund and other sponsors for organizing an extremely engaging conference. I don't remember a conference where I was so eager to hear each and every talk that was presented! I recommend continuing this conference in future years, if possible – not annually, but perhaps every few years, to summarize science and policy progress.

As a toxicologist, I tend to look at lead in a rather simplistic way. Nutritionally, lead is completely nonessential to humans and other living organisms. On the other hand, lead is intrinsically very toxic. So, isn't it just basic good sense to get rid of lead wherever we can and replace it with other less toxic materials, so that environmental and human exposure to lead is reduced? Many countries have, in fact, recognized the need to phase out the use of lead, and over the past 40 years or so, lead has gradually been removed from numerous items and uses for which it was historically quite common. In North America, it has largely been removed from paints, pottery glazes, gasoline products, solder, and plumbing pipes. And isn't that ironic—we don't use lead in plumbing anymore, even though the word "plumbum" means "lead" in Latin.

So, we've made progress, but it's been slow at times, slower than most of us would like to see. We

have made progress, also, in the area of lead ammunition. In Canada and the USA, and in some other countries, the use of lead shot for hunting waterfowl is now generally prohibited. But new issues involving lead ammunition have arisen, and I think that one of the great successes of this Conference is that it has succeeded in bringing together the wildlife researchers and issues, with the human health researchers and issues. This is very important because dietary exposure to fragments of metallic lead from ammunition has potentially important consequences for both wildlife and people. And the recognition of a human health component to this issue may help to accelerate progress in "getting the lead out".

I'll tell you one anecdote that illustrates why it can be important to include considerations of both environmental and human health in issues such as this. In Canada, in 2003, the Department of the Environment released a report on the environmental hazards of lead in recreational angling. It caused quite a stir in some quarters. Initially, one of the major opponents to removing lead from small fishing sinkers and jigs was the Canadian Sport Fishing Industry Association (CSIA), a group of manufacturers, distributors, and retailers of tackle equipment. Our dialogue with the CSIA was quite contentious at first, as some of their members believed

that restricting the use of lead would have a major and unnecessary negative impact on the tackle industry, and on recreational angling in general. Needless to say, we didn't get along very well at the beginning of this endeavor. However, what we were trying to do was to bring them on board as partners, to help us move forward to determine the best strategies for removing lead from terminal fishing tackle, especially small sinkers and jigs. CSIA was very much opposed to that concept, initially. But eventually, once they became aware that people who cast their own lead sinkers might be at risk from lead exposure, and that children might accidentally swallow split-shot sinkers and be at risk for lead exposure, their attitude changed dramatically. Our discussions became much more cordial, and CSIA is now no longer opposed to controlling the use of lead for manufacturing sinkers and jig; rather, they want to be part of the process for determining the best strategies for reducing the use of lead.

That's a great lesson and I hope that the group that has come together in Boise for this Conference will

continue to work together, and perhaps will also expand to include other stakeholder groups. It's important in the crafting of policies to reduce the use of lead that all significant stakeholders be actively involved in a consultative approach. For the lead-from-ammunition issue, this includes federal and state/provincial environmental and human health agencies; the ammunition industry; non-governmental environmental and wildlife organizations; and the hunting community.

Biography.—**Tony Scheuhammer, Ph.D.**, is a research scientist at the National Wildlife Research Centre at Carleton University, Canada. He conducts research on the ecotoxicology of metals, especially lead and mercury, and their hazards to wildlife. His research influenced the Canadian ban on lead shot and recommendations to replace lead sinkers with other non-toxic materials in fishing equipment. Some of his current research includes investigations of the environmental impacts of lead from various sources, especially as it relates to toxicity in avian wildlife.