Musings from the Editor

ASSOCIATION OF PROFESSIONAL BIOLOGY
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Science Literacy - Why Should Biology Professionals Care?

What is Science Literacy Anyhow?

The term "*science literacy*" has been broadly debated. Originally, the term was used to imply the knowledge, skills and attitudes that were essential to a career as a professional scientist, engineer or technician. However, in more recent times, we have come to realize that science literacy must encompass all of society. Thus, science literacy is better defined as the capacity to access, read and understand material that has scientific or technological content, to critically evaluate this material, and to use this evaluation to inform everyday decisions. To quote Dietmar Kennepohl[1]:

"*It is sometimes helpful to describe science literacy in terms of what it is not. Science literacy is not the possession of specialized expert knowledge often described in seemly obscure jargon. You do not need to have a working knowledge of the International Geomagnetic Reference Field Model to understand how a compass works. Science literacy is also not technology literacy. Operating a computer is not science.*"

Why do we Need Science Literacy?

A variety of arguments have been put forth regarding the need to increase science literacy, including (1) personal satisfaction, (2) cultural health of a nation, (3) simple aesthetics, (4) economics, (5) intellectual coherence, and (6) cultivation of a better informed electorate that can actively participate in a democratic system, because more political decisions now involve scientific considerations. Science literacy enables people to make positive connections between science, technology, innovation, the economy, our environment, and our society[1]. As we enter a time of increasing change, where the future will be dominated by issues such as global warming and resource limitation, this ability to think critically and see the connectedness of all systems on earth may be crucial to our survival..

But We Live in Canada … Surely Canadians are Science Literate?

Wrong! In North America, only about 10 to 15% of the general public is "*scientifically literate*". Canada does a little better than average, but it is estimated that fewer than 20% of Canadian adults are regarded as scientifically literate[1]. Furthermore, recent Canadian assessments have shown that student performance in science has been falling since 1999[2].

But I do Biology … I'm not an Educator!

Even if you do not feel any moral or altruistic obligations towards improving science literacy, I can suggest at least two good practical reasons why you might want to educate the public around biological issues. Firstly, it can ensure that your work gets done correctly and that your recommendations are followed. There are very few projects that do not have the public involved at some level, whether as concerned citizens, business people, or landowners. Frequently, they will have a limited understanding of the biological principals behind the work that you are doing. As a result, they may not be able to adequately express their concerns and needs to you, thus limiting your ability to scope the project correctly. Furthermore, if it appears that your recommendations do not correspond with their understanding of the situation, they may either unintentionally or purposefully disregard them. Secondly, by educating and encouraging the public, we are ensuring that there will be people to follow in our footsteps. If you are still early in your career, this may not seem so important, but for those of us who are a little further along, it can often be a serious challenge to find new people who are motivated, interested, and skilled to fill out the team as others retire.

OK … Count Me In. What do I do?

There are many, many good programs working towards science literacy that you can check out. However, for a start, I'm going to recommend that you take a quick look at one of my favorite blog sites, Deep Sea News. One of their core values is "promoting ocean literacy" (a type of science literacy). To this end, they have a good article titled "Promoting Ocean Literacy – a DSN Core Value" which makes for excellent reading. As a final note, I will leave you with the "*following short list of elements that should be incorporated into any communication of any kind of science to anyone at all:*

1) add humour

2) supply context (before you lament having to start at square one, reflect on the fact that most lay audiences haven't even reached that point)

3) don't just dump the jargon: use the vernacular as well. Any reference to Paris Hilton, no matter how far-fetched, is good.

4) add more humour"[3]

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[1]Kennepohl, D. 2009. The Science Gap in Canada: a Post-Secondary Perspective. Canadian Journal of Educational Administration and Policy, Issue #93. http://www.umanitoba.ca/publications/cjeap/pdf_files/Kennepohl.pdf.

[2]Knox, K., Schmidt, B. 2006. A Wake-up Call on Science Literacy: Canada's Future Depends on it. https://www.scienceandtechnologynetwork.ca/main/downloads/knox.pdf.

[3]Ingram, J. 2007. Raising Scientific Literacy (or Bamboo under My Fingernails). La Physique au Canada Vol. 63, No. 3. http://banffscience.ca/pdfs/articles/Ingram-on-Science-Literacy.pdf.

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