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## Speaking the same language?

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In the first few weeks into my PhD, I ran a systematic review to better understand research gaps and the role my PhD may play in furthering my field of research. This is a pretty common task for any new PhD student that wants to wrap their head around a new research idea. And so, after many weeks of brainstorming and prolonged coffee breaks, I emptied a flurry of search terms, and key literature onto a whiteboard. Armed with the perfect, most refined selection phrases which were sure to capture every single paper ever produced on my topic, I was ready. I eagerly typed my curated word list into the advanced search bar and hit, 'run search'.

I naively assumed I had captured every piece of scientific literature ever written on the impact of plastic ingestion on wildlife. My search results came back in seconds; with thousand upon thousands of results. I stared at the seemingly endless list of papers. I think I nearly cried. It was an impossible task. How was I expected to read and critically review every single one of these papers?

After a pretty extensive stress nap and many coffees later, I began the tedious task of excluding irrelevant papers, learning very quickly that there was a major flaw in my search terms. I had been searching for any articles with "plastic" in the title and this included the

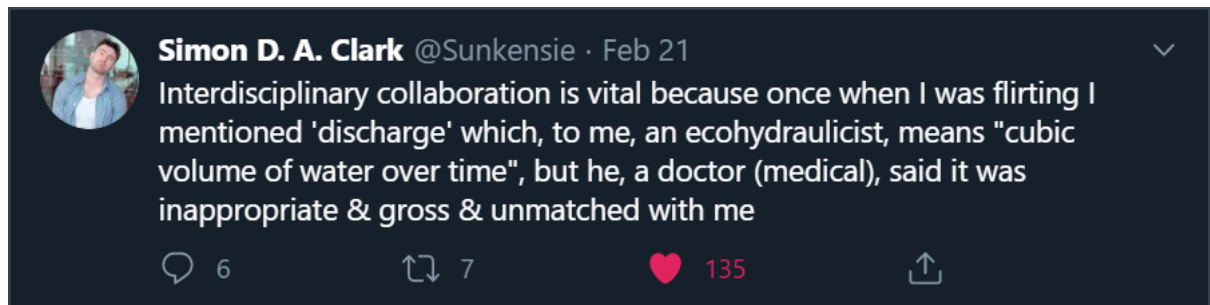
word “**PLASTICITY**”. I thought about that word, Plasticity. What does that even mean to me? I think it describes the properties of an item and in the context which I had set, perhaps it described the type of plastic that animals were ingestion. In engineering and physics Plasticity, describes a material’s ability to shift to an irreversible change of shape under force. In Neurology, brain plasticity may describe the capacity for the brain to learn new abilities or undergo stress. In some fields of biology, it refers to an organism’s behaviours, movement, or physiological change in response to environmental conditions – which would explain why I was reading abstracts from botany journals on the plasticity of tree bark under different environments.

In the early days of my search I had not realised how the jargon used in my field of science had such very different meanings across disciplines. I removed **PLASTICITY** from my search. The results dropped from thousands of papers to just over 200. It turns out there are quite a few research gaps (Puskic *et al.*, 2020).

Unknowingly, this was my first step in my training to working as an interdisciplinary scientist. It was later, when I attended the CMS summer school in February 2020 that I better understood this. In one of the many brilliant sessions, we discussed a CMS led paper, Kelly *et al.* (2019) in which researchers shared their top tips for interdisciplinary research. Tip 2: learn new languages – seek to understand and speak across disciplines. It all comes down to jargon. This as it turns out, is fundamental to working as an interdisciplinary scientists. We must have a firm grounding and understanding of our own field, but we must also have the capacity to translate this to other disciplines if we are to tackle any of the huge marine conservation issues that we currently face.

Sometimes we are so caught up in our little pockets of research that we forget the true meaning of words. I could tell you about the time a parasitologist said he had found a new type of ‘fluke’, I assumed they had meant some kind of whale tail rather than an endoparasite. Our friend had thought he had meant the discovery was a coincidence.

I also love this twitter example:



The grand challenge of plastic pollution requires an interdisciplinary research approach. When I reflect on that early review, my goal was to highlight the physiological impacts of plastic ingestion on wildlife. I wanted to understand how plastic affects health and I think maybe even suggest solutions, though that last part was not possible. Reducing plastic pollution requires most of human society to dramatically shift behaviours, policy, and environmental values. We need to increase ocean literacy, consume less, and equitably share resources and knowledge. While my research area highlights the impacts of plastics it does very little to actually bring about these positive changes and reduce plastic entering the oceans. This is where trans and interdisciplinary collaboration has a pivotal role. By understanding the impacts of plastic pollution through a variety of research areas such as governance, legislative and human behaviour we can focus on what are tangible and realistic solutions. For this approach to work, we need to broaden those research bubbles of ours and start learning to understand each other.

**Further Reading:**

**Kelly R, Mackay M, Nash KL, Cvitanovic C, Allison EH, Armitage D, Bonn A, Cooke SJ, Frusher S, Fulton EA** (2019) Ten tips for developing interdisciplinary socio-ecological researchers. *Socio-Ecological Practice Research* 1: 149-161

**Puskic PS, Lavers JL, Bond AL** (2020) A critical review of harm associated with plastic ingestion on vertebrates. *Science of the Total Environment*: 140666