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## A Response to Marco Verweij

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Mary Durfee

**I** still stand by my point that Verweij has suggested a very interesting approach to the comparative study of regulation. And, I remain committed to my point that the *method* he tried to use is so contingent on sound biophysical science that his mismatches, even if they don't loom large to him, do matter if we hope to move forward with his idea.

The fundamental basis of comparison—water quality—between lakes and rivers is nonsense as currently constructed. But this just highlights the crucial problem before us as we attempt to link changes in policy, which are supposed to influence human systems, with non-human systems. Finding comparative biophysical data that are equivalent in what they measure (for example, chemical pollution in water), that match in terms of their scales, that change in roughly the same way as each other is no easy matter, as Verweij discovered. Finding the comparative social or policy information that measures what it claims to measure and at a relevant scale are also difficult. Linking biophysical and social scales presents a stern challenge to natural and social scientists alike. Until we can do that effectively, we will not be able to discern whether variation in social processes and organizations helps or hurts the management of non-human systems. Yet, making progress on that front matters to scientists, governments, and citizens.

In my comments, I suggested other ways to set up the biophysical system so that the systematic comparison of regulatory systems and their effectiveness could be made. It may not be possible to match scales between human and non-human systems exceptionally well at first, but at least we could get closer to the mark by comparing comparable biophysical evidence. Verweij has proposed a novel method to assess the effectiveness of regulatory systems in the pages of this journal; now the protocols for executing it need to be developed.