I've posted a lot on how important monitoring of environmental conditions is for environmental law, and how difficult it can be to do monitoring well. Here is another recent example from the news. After the Deepwater Horizon blowout, there was a lot of concern about how much oil was leaked into the Gulf of Mexico, and the impacts of that oil on the commercial seafood industry in the Gulf and on the marine ecosystems more broadly in the Gulf. A recent study by a group of university professors found that the levels of oil contamination in the Gulf is much higher than originally reported by NOAA, which did much of the initial monitoring after the spill. Why? The academics argue that this is the result of the sampling method used by NOAA. NOAA's method took water samples from very narrow locations, on the assumption that the oil contamination was roughly evenly spread throughout the water column and across the Gulf. However, the academics took samples that represented much larger locations. They conclude that this detected much higher levels of contamination because the oil was not evenly distributed throughout the water column and the Gulf. Instead, the heavy use of oil dispersants during and after the blowout meant that the oil was patchily distributed. If you only sample a limited number of locations, and your locations happen to miss the patches where the oil is located – as NOAA apparently did – you will detect much lower levels of contamination than if you use a sampling method that is more representative.

Of course, this problem matters directly for the questions about how to manage the recovery of the Gulf from the oil spill, whether Gulf seafood is safe to eat, and how much compensation is owed by BP for the harm done to the Gulf. But the bigger lesson here is that good monitoring is, once again, hard to do. Even experts in NOAA made mistakes in how they designed their sampling protocol because they didn't understand how the widespread use of oil dispersants would affect the distribution of oil in the Gulf waters. And it took years for the error to be discovered by other expert scientists. So not only is good monitoring hard to do, it is often hard for us to detect problems with monitoring.

That means, I think, that we should be wary of environmental laws and policies that depend heavily on high-quality monitoring data – for instance, adaptive management. If we depend so heavily on monitoring, and if monitoring is unreliable (and even worse, we don't even often know which monitoring is unreliable), our environmental laws and policies may often end up being ineffective or even counterproductive.