Table 1. Differences between Academic and Regulatory Science.

	REGULATORY SCIENCE	ACADEMIC SCIENCE
INSTITUTIONS	Government/industry	Universities
GOALS	Information needed to meet regulatory requirements and to provide reliable information for decision makers. Research "questions" are framed by legislators and regulators and have immediate social and economic implications. Ultimate goal is conflict resolution via public debate over competing interests and values.	Original research framed by scientists and driven by rational analysis and expert judgment. To expand the understanding and knowledge of the natural world through an ongoing process of questioning, hypothesizing, validation, and refutation.
ROLE OF UNCERTAINTY	Predictive certainty is required by the political process and the legal system. Knowledge is frequently and necessarily generalized to situations very different from those in which the original data was collected. Uncertainty is unwelcome by the public, legislators and the courts.	Uncertainty is expected and "embraced"
COMPLETENESS OF INFORMATION	Must frequently act before all the necessary information is developed.	Publish when a body of information has been developed, tested, and validated.
STATISTICAL SIGNIFICANCE/ ACCEPTABLE ERROR/BURDEN OF PROOF	Often work with a legal mandate to minimize Type II error with the result that Type I error is increased .	Strive to minimize Type I error.
ROLE OF VALUES	Regulatory scientists are required to consider and work with the values of many including the public, politicians, the scientific community, and the regulatory community.	Academic scientists work primarily with their own and their collaborators' values; seldom have to incorporate public or political values .
PRODUCTS	"Gray literature," baseline data, monitoring data, regulatory documents.	Published, peer-reviewed papers and books, presentations at professional meetings.
TIME-FRAME	Determined and driven by statute, regulation, and the political process; finite and often quite short (90 days to 2-4 years). Resolution of problems being reacted to is often crisis-driven or driven by court-mandated timelines.	Open-ended; usually carried out relatively free of an urgent need for the information generated.
POLITICAL INFLUENCE	Directly influenced by politics – upper-level administrators are appointed by the President; funding is at the will of Congress; ultimate oversight is by the courts.	Indirectly influenced by the researcher's own political philosophy and by their perception of the preferences of grant and tenure review committees.
ACCOUNTABILITY	Legislatures, courts, and the public.	Professional peers.
INCENTIVES	Compliance with legal requirements, working for the public good.	Professional recognition, advancement in tenure system; university administration.