Risk Assessment and Multiple Frames: A System Dynamics Policy Integration of the 1998 Springfield, Illinois Leptospirosis Outbreak.

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This paper uses the 1998 Springfield Illinois outbreak of leptospirosis to develop a framework for understanding governmental protective regulatory policy. The outbreak occurred in Lake Springfield which serves as a recreational site and primary source of drinking water for 250,000 people.

For an outbreak such as that in Illinois, one of the critical issues in developing an effective government response is in understanding how risk is viewed, both conceptually and programmatically by all impacted stakeholders. The social construction of risk defines it as an important leverage point in understanding the dynamics of the government's policy response. Margolis (1990) proposes four very different conceptions of risk: indifference, tradeoff, waste-not want-not, and better-safe-than-sorry. We map Margolis's framework onto protective regulatory policies and suggest that these policies have three dominate system archetypes embedded within them -- Tragedy of the commons (water utilization and multiple stakeholder issues), fixes that fail (short-term expediency versus long term prevention), and shifting the burden (government intervention results in costs transference). These different views of risk can lead policy makers to qualitatively different policy interventions. In our approach we see this as an important aspect of the policy process.

Results from this investigation include a framework for linking system dynamics archetypes to current models of policy processes, and a reporting out of the Leptospirosis case with identified maximal leverage points addressed. This case offers us an opportunity to model water utilization cycles and the dynamics of leptospirosis, and to begin to model the nature of the government's policy response.