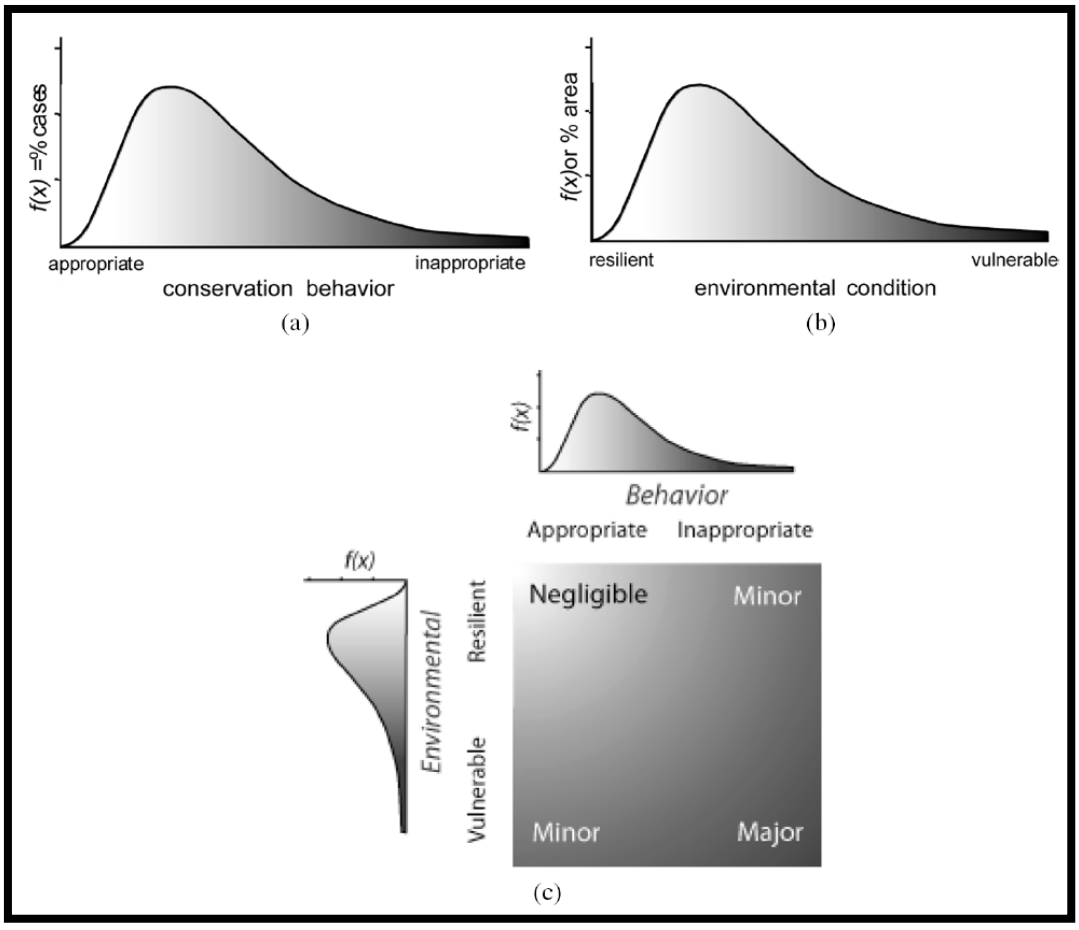
Disproportionality: An Interdisciplinary Bridge to Analyzing Environmental Degradation

A Center for Water & Society/Environmental Policy/Environmental Engineering Seminar by

Dr. Pete Nowak

Professor, Environmental Studies, Nelson Institute
Soil & Water Conservation Specialist, UW-CALS ERC
University of Wisconsin-Madison

12:00, Friday, October 2, 2009
M&M U113



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Michigan Tech Center for Water & Society
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We live in a world where "wicked problems" prevail. These are complex problems, often involving humans, where normal science and scholarship cannot provide adequate solutions. Wicked problems are not solved, they are tamed, and they are tamed by integrating biophysical with social science. Most instances of environmental degradation may be viewed as wicked problems. An often recognized but rarely used feature of our biophysical and social world is that they are characterized by skewed distributions. That is, we live in a log-normal world. This means that the vulnerability of any environmental or ecological resource is distributed in a log-normal fashion. The appropriateness of any social behavior relative to the biophysical setting where it occurs is also distributed in a log-normal fashion. Hence, environmental systems are often "driven" or structured by a small amount of inappropriate behaviors occurring in especially vulnerable places or times. This is disproportionality. These disproportionate impacts often escape our efforts to develop remedial policy because programs are too often designed for the average.

The concept of disproportionality is an excellent bridge to work in an interdisciplinary setting. This is the case because any social behavior takes on its meaning or interpretation based on the biophysical setting of that behavior. On the other hand, biophysical science needs to describe the type of disturbance or behavior that is part of the meaning of fragile or vulnerable. In sum, environmental degradation can be viewed as the outcome of the interaction of biophysical and social processes where the outcome is determined by the outliers or extremes rather than the averages. An example application of the concept of disproportionality to phosphorous loadings in a sensitive watershed will be provided.

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