

## Strategies for Risk Communication: Evolution, Evidence and Experience

15-17 May 2006  
Montauk Yacht Club Resort & Marina  
Montauk, Long Island, New York



Society for Risk Analysis



National Science Foundation



Pfizer



Applied Biomathematics

Thanks

## Why are we so bad at probability?

- Counterintuitive
  - Tversky et al.
  - De Morgan, Laplace
  - Monty Hall problem
- Paradoxes
  - St. Petersburg
  - Ellsberg

## Why don't we trust risk analysis?

- Too hard
  - needs too much data
  - too expensive (requires consultants)
  - too complicated (difficult to review)
- Undemocratic
  - just more meddling by higher-ups
  - requires a priesthood of professional risk analysts
- Tool for obstructionists that helps the other side
  - to delay the project, or to delay remediation
  - exposes subtle effects, or muddles a clear conclusion
  - susceptible or prone to bias

“It’s not the figures lying I’m worried about,  
it’s the liars figuring.”

Mark Twain

## A new synthesis

- Risk perception and communication
- Brain science and neurobiology
- Anthropology and human evolution

**Scott Ferson** is a senior scientist at Applied Biomathematics. He holds a Ph.D. in ecology and evolution from the State University of New York at Stony Brook and an A.B. in biology from Wabash College. He has over 80 scholarly publications, including five books and several software packages, in environmental risk analysis and uncertainty propagation. His research focuses on developing reliable mathematical and statistical tools for risk assessments and on methods for uncertainty analysis when empirical information is very sparse. Over the last decade, his research has included projects on variability and uncertainty in early system design (NASA), safe environmental concentrations under uncertainty (NIH), uncertainty projection in black-box models (Sandia National Labs), quality assurance methods for Monte Carlo risk analysis (NIH), exact probability methods for generalized occupancy models (NIH), ecological implications of toxicological data (EPRI), power tests for exact statistics for detecting disease clustering (NIH), ecotones and boundary delineation for detecting global change (EPRI), qualitative ecological modeling (NSF), and stage modeling for animal population dynamics (Army Corps of Engineers). Ferson is an adjunct professor at Marine Sciences Research Institute at Stony Brook University, and serves on the editorial board of Human and Ecological Risk Assessment. He is chair of the conferences and workshops committee of the Society for Risk Analysis and has served on several panels in the US and the EU.